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DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE CALIFORNIA TIGER SALAMANDER, SANTA BARBARA COUNTY

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EXECUTIVE SUMMARY AND REPORT ORGANIZATION

The purpose of this report is to identify and analyze the potential economic impacts associated with the designation of critical habitat for the California Tiger Salamander (*Ambystoma californiense* or CTS) in Santa Barbara County. This report was prepared by Economic & Planning Systems, Inc., for the U.S. Fish and Wildlife Service (Service).

Section 4(b)(2) of the Endangered Species Act (Act) requires the Service to designate critical habitat on the basis of the best scientific data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.[1] In addition, this analysis provides information to allow the Service to address the requirements of Executive Orders 12866 and 13211, and the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA).[2] This report also complies with direction from the U.S. 10th Circuit Court of Appeals that, when deciding which areas to designate as critical habitat, the economic analysis informing that decision should include "co-extensive" effects.[3]

This analysis considers the potential economic effects of CTS conservation activities in the proposed critical habitat designation (CHD) both historically since the listing and prospectively. Actions undertaken to meet the requirements of other Federal, State, and local laws and policies may afford protection to the CTS and its habitat, and thus contribute to the efficacy of critical habitat-related conservation and recovery efforts. Thus, the impacts of these activities are relevant for understanding the full impact of the proposed CHD.

BACKGROUND OF CTS CRITICAL HABITAT DESIGNATION

Critical habitat was proposed for designation for the CTS in January 2004. As required under the Endangered Species Act, the Service is conducting an economic analysis to measure the economic effect of the proposed CHD. The proposed CTS CHD covers six areas, or Units, around breeding ponds in northern Santa Barbara County, California.

[1] 16 U.S.C. §1533(b)(2).

[2] Executive Order 12866, "Regulatory Planning and Review," September 30, 1993; Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," May 18, 2001; 5. U.S.C. §§601 et seq ; and Pub Law No. 104-121.

[3] In 2001, the U.S. 10th Circuit Court of Appeals instructed the Service to conduct a full analysis of all of the economic impacts of proposed critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes (New Mexico Cattle Growers Ass'n v. U.S.F.W.S., 248 F.3d 1277 (10th Cir. 2001)).

The six units comprise 13,920 acres in total. **Exhibit ES-1** details the description and acreage of each unit. The majority of the land in each unit is privately owned, with some land owned by the Santa Maria Public Airport District, the County of Santa Barbara, and other public agencies.

Exhibit ES-1
Summary of Estimated Land Ownership in CTS Critical Habitat
(Acres within CHD boundaries)

Critical Habitat Unit	**Total**
One – Western Santa Maria/Orcutt	4,349
Two – Eastern Santa Maria	2,985
Three – Western Los Alamos	2,181
Four – Eastern Los Alamos	1,302
Five – Purisima Hills	2,359
Six – Santa Rita Valley	744
TOTAL	**13,920**

Source: *Proposed Designation of Critical Habitat for the California Tiger Salamander*

RESULTS OF THE ANALYSIS

This analysis addresses the impacts of CTS conservation efforts on activities occurring on lands proposed for designation. This analysis measures lost economic efficiency associated with real estate development, grazing activities, agriculture, vineyards, road construction projects, utility and other infrastructure projects, as well as the California Environmental Quality Act (CEQA) requirements, uncertainty, and project delay.

There is a great deal of uncertainty in estimating the impact of CTS-related conservation activities in the future. For example, the analysis projects significant future cost to private developers as a result of CTS conservation activities even though these costs have been relatively minimal in the past. This is likely due to the fact that the presence of the CTS is relatively difficult to determine, which may become less of a factor once CH is designated. The "Caveats to the Economic Analysis" section of this executive summary describes additional uncertainties affecting this analysis.

Future economic impacts expected to result from CTS-related conservation activities are summarized in **Exhibits ES-2** and **ES-3** and discussed below. To illustrate where impacts are expected to occur, the results of the analysis are presented by geographical unit. For the purposes of analysis of the real estate development sector EPS has examined two different development scenarios. The first scenario, the "lower bound", assumes that only critical habitat (CH) currently zoned for commercial, residential or industrial development will develop through 2030. The second, the "upper bound",

Table ES-2
Summary of Upper-Bound Past and Future Impacts Within Proposed Critical Habitat (1)

CH Unit	Viticulture	Road Construction	Utilities & Infrastructure	Airport District	Real Estate Development			Total
					Project Costs	CEQA	Delay	
Future Impacts (2005 - 2030)								
1	$ 16,195	$ 143,353	$ 299,911	$ 508,771	$ 165,642,890	$ 3,073,282	$ 23,213	$ 169,707,614
2	$ 16,195	$ -	$ 461,495	$ -	$ 233,304,614	$ 4,729,075	$ -	$ 238,511,378
3	$ 2,440,305	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,440,305
4	$ 3,011,139	$ -	$ 16,207	$ -	$ 4,350,571	$ 166,074	$ 54	$ 7,544,044
5	$ 16,195	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,195
6	$ 16,195	$40,949	$ -	$ -	$ -	$ -	$ -	$ 57,144
Total	$ 5,516,223	$ 184,302	$ 777,612	$ 508,771	$ 403,298,074	$ 7,968,430	$ 23,267	$ 418,276,680
Annualized Future Impacts (2)	$ 466,458	$ 15,585	$ 65,756	$ 43,022	$ 34,103,300	$ 673,819	$ 1,967	$ 35,369,906
Past Impacts (2000 - 2004)								
1	$ -	$ 26,390	$ 124,664	$ 400,000	$ -	$ -	$ -	$ 551,053
2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	$ 270,045	$ -	$ -	$ -	$ -	$ -	$ -	$ 270,045
Total	$ 270,045	$ 26,390	$ 124,664	$ 400,000	$ -	$ -	$ -	$ 821,098
Grand Total	$ 5,786,268	$ 210,692	$ 902,276	$ 908,771	$ 403,298,074	$ 7,968,430	$ 23,267	$ 419,097,778

(1) Future and past impacts are discounted at 7 percent and presented in present value terms using 2004 dollars.
(2) Annualized impacts are calculated using a discount rate of 7 percent and a 26 year time horizon.

Table ES-3
Summary of Lower-Bound Past and Future Impacts Within Proposed Critical Habitat (1)

CH Unit	Viticulture	Road Construction	Utilities & Infrastructure	Airport District	Real Estate Development			Total
					Project Costs	CEQA	Delay	
Future Impacts								
1	$ 16,195	$ 143,353	$ 774,841	$ 508,771	$ 97,060,941	$ 1,683,300	$ 23,213	$ 100,210,613
2	$ 16,195	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,195
3	$ 2,440,305	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,440,305
4	$ 3,011,139	$ -	$ 2,772	$ -	$ 225,151	$ 6,021	$ 54	$ 3,245,137
5	$ 16,195	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,195
6	$ 16,195	$ 40,949	$ -	$ -	$ -	$ -	$ -	$ 57,144
Total	$ 5,516,223	$ 184,302	$ 777,612	$ 508,771	$ 97,286,092	$ 1,689,322	$ 23,267	$ 105,985,589
Annualized Future Impacts (2)	$ 466,458	$ 15,585	$ 65,756	$ 43,022	$ 8,226,612	$ 142,851	$ 1,967	$ 8,962,250
Past Impacts								
1	$ -	$ 26,390	$ 124,664	$ 400,000	$ -	$ -	$ -	$ 551,053
2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	$ 270,045	$ -	$ -	$ -	$ -	$ -	$ -	$ 270,045
Total	$ 270,045	$ 26,390	$ 124,664	$ 400,000	$ -	$ -	$ -	$ 821,098
Grand Total	$ 5,786,268	$ 210,692	$ 902,276	$ 908,771	$ 97,286,092	$ 1,689,322	$ 23,267	$ 106,806,687

(1) All costs are discounted at 7 percent and presented in present value terms using 2004 dollars.
(2) Annualized impacts are calculated using a discount rate of 7 percent and a 26 year time horizon.

assumes that all second-tier agricultural land within CH will be converted to urban uses by 2030, in addition to land currently zoned for development. **Chapter 3** provides additional detail regarding the development scenarios.

This analysis considers both economic efficiency and distributional effects. In the case of habitat conservation, efficiency effects generally reflect the opportunity costs associated with the commitment of resources to comply with habitat protection measures (e.g., lost economic opportunities associated with restrictions on land use). This analysis also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of CTS conservation and the potential effects of conservation activities on small entities and the energy industry. This information can be used by decision-makers to assess whether the effects of the designation might unduly burden a particular group or economic sector. It is important to note that measures of regional economic impact are entirely distinct from the reported efficiency effects. As such these two measures of impact cannot be directly compared and should not be summed.

Economic Efficiency Impacts

As shown in **Exhibit ES-2**, total efficiency costs for the upper bound scenario are estimated to be $418 million between 2005 and 2030. These costs are expressed as present value estimates with future costs discounted at 7 percent to take into account the time value of money (i.e., costs incurred far off in the future are weighted lower than costs incurred in the short term). **Exhibit ES-3** details the efficiency costs for the lower bound scenario, which total $106 million between 2005 and 2030. In both cases the real estate industry, in particular the owners of developable land, is estimated to experience the highest cost overall, followed by agriculture and road construction projects. Further results are described below.

- ***Project modification and administrative costs borne by the real estate sector:*** Project modifications costs are those costs associated with implementing species and habitat management efforts. These costs include the cost of offsetting compensation (i.e., land set-aside) for impacts to CTS habitat. Additionally, project modifications include minimization and avoidance measures to protect the CTS while a project is ongoing. Administrative costs will also be incurred from attending meetings, preparing letters and biological assessments, and in the case of formal consultations, the development of a Biological Opinion. Project costs resulting from CTS conservation activities are expected to be approximately $403 million in the future (2005–2030) for the upper bound scenario and $97 million for the lower bound scenario. Land set-aside makes up the large majority of the total project modification cost.

- ***The effect of land set-aside on the regional market:*** Estimation of the regional significance of land set-aside suggests that regional real estate markets will not be affected by CTS conservation efforts. EPS projects development pressure in

CH units located in the path of development under two scenarios. Under each scenario, the foregone development associated with land set-aside is estimated to be a small fraction of the regional market.

- ***CEQA and delay costs borne by the real estate sector:*** Though information regarding the range of the CTS has been available to project proponents and local/regional governments since July 2000, this information was a rough approximation.[4] CH may create a new level of uncertainty regarding the implementation of real estate projects, adding to project risk and, in some cases, the development schedule. California Environmental Quality Act (CEQA) costs are due to the potential for CH to provide new information to local cities, counties and other agencies, leading them to require developers to complete an Environmental Impact Report (EIR) for their projects. Costs associated with CEQA and delay are expected to be approximately $8.0 million and $23,000, respectively, in the future for the upper bound scenario and $1.7 million and $23,000, respectively, for the lower bound scenario.

- ***Project modification and administrative costs borne by the California Department of Transportation (Caltrans) and other public road development agencies:*** Project modifications to road projects include habitat surveying and biological monitoring for the CTS. Future CTS-related costs associated with major public road projects are estimated to be $184,000.

- ***Project modification and administrative costs borne by municipalities and private utilities:*** Project modifications to utility and other infrastructure projects include habitat surveying and biological monitoring for the CTS. Project modification costs associated with utility and other infrastructure projects are expected to be approximately $778,000 in the future.

- ***Project modification and administrative costs borne by the agricultural sector:*** Two sites are currently under development as vineyards and may face significant restrictions owing to the presence of CTS. Modifications necessitated by CTS conservation activities on those sites, along with other potential vineyard sites in CH are estimated to cost approximately $5.5 million.

- ***Project modification and administrative costs borne by the Santa Maria Public Airport District:*** The Santa Maria Public Airport District is in the process of planning a large research park and golf course development. Modifications necessitated by CTS have already cost approximately $400,000 in planning and legal expenses and mitigation costs are expected to add an additional $509,000 through 2030.

[4] See Chapter 6 for additional information regarding the range of the CTS.

Distributional Impacts

- **Impacts to Small business may occur**. The primary small entities potentially affected by the CTS conservation activities include land developers and small public agencies. The impacts to land developers are expected to represent less than 1 percent of annual gross revenues for a typical small business in this sector and a negligible portion of total small business sales in the Santa Barbara County for the sector.

- **Energy Industry Impacts,** Pursuant to Executive order No. 13211, Federal agencies are required to submit a summary of the potential effects of regulatory actions on the supply, distribution and use of energy. This proposed CHD is not expected to generate any "significant adverse effects" as defined by the Office of Management and Budget.

CAVEATS TO THE ECONOMIC ANALYSIS

Exhibit ES-4 presents several key assumptions that introduce uncertainty into this economic analysis of CTS conservation measures, as well as the potential direction and relative scale of bias introduced by the assumption.

ORGANIZATION OF THE REPORT

This report contains six chapters. **Chapter 1** presents the analytic framework of the analysis, including a discussion of the types of economic impacts that are estimated, the time frame of the analysis, and a summary of the analytic steps comprising the analysis. **Chapter 2** provides background on the designation, the species and its habitat, and economic context of northern Santa Barbara County. **Chapter 3** details the impact on real estate development of the CTS CH. **Chapter 4** provides information on the economic impact on other private activities, such as ranching, row crops and viticulture. **Chapter 5** details the economic impact on public projects and activities, including roads, utilities, and the Santa Maria Public Airport District. **Chapter 6** elucidates additional economic impacts, such as market uncertainty, and regulatory uncertainty and delay. Finally, **Appendix A** addresses SBREFA and energy impacts. **Appendix B** provides additional detail regarding real estate development impacts (i.e., growth projections and set-aside calculations) and **Appendix C** details the results of a reduction in the discount rate applied to future costs from seven percent to three percent.

Exhibit ES-4
Caveats to the Economic Analysis

Key Assumption	Effect on Impact Estimate
The analysis does not assume that developers may satisfy multiple public land use requirements by setting aside CTS habitat on the project site. In reality, projects benefit from claiming that habitat protection provides open space, necessary buffering between incompatible land uses, flood control, and other functions. The use of habitat land in this way reduces the project's required dedication of land for other open space uses compared to a land use plan in which no habitat set aside is required.	-
The rate of change in the price of land may not be uniform across the study area, and real rates of increase during the next 20 years may be above or below the level used in the calculations.	+/-
The quantity and location of development over the next 20 years may produce less than 100 percent buildout of areas planned for development. General plan designations and existing land use data are not perfect indicators of developable land, either. In many cases, maximum allowable development can overstate the amount of development that is actually achievable.	-
The analysis assumes a 3:1 offsetting compensation ratio for CTS land that is developed. There is no historical evidence to support this assumption. The 3:1 ratio is based on information provided by the Service. If future projects are subject to a different offsetting compensation ratio, this analysis may overstate or understate economic impacts.	+/-
Each acre of CH does not necessarily contain CTS or the constituent elements of CH. However, this analysis assumes that all CH units contain the primary constituent elements for CTS habitat. Economic costs may be avoided if projects are undertaken in CH but neither CTS nor constituent elements are present.	-
The analysis utilizes the best available existing data, i.e., estimates of impacts from enterprises or agencies with not yet planned, completed, or ongoing projects may be missing.	-

-: Modifying the analysis to reflect the presented information would lower the estimated costs.
+: Modifying the analysis to reflect the presented information would raise the estimated costs.
+/-: This consideration has an unknown effect on estimates.

1. REPORT BACKGROUND & ANALYTICAL FRAMEWORK

REPORT BACKGROUND AND PURPOSE

The U.S. Fish and Wildlife Service (Service) has proposed to designate approximately 13,920 acres of critical habitat (CH) in Santa Barbara County in the State of California for a distinct population segment (DPS) for the California Tiger Salamander (*Ambystoma californiense* or CTS). As required under the Endangered Species Act (Act), the Service is conducting an economic analysis to measure the economic effect of critical habitat designation (CHD).

On January 19, 2000, the Service published an emergency rule listing the Santa Barbara County DPS of the California tiger salamander as endangered (65 Federal Register (FR) 3096) together with a proposed rule to list the DPS as endangered (65 FR 3110). On September 21, 2000, the Service listed the Santa Barbara County DPS as endangered (65 FR 57242). On May 23, 2003, the Service published a proposed rule (1) to list the Central California DPS of the California tiger salamander as a threatened species, (2) to downlist both the Santa Barbara County and the Sonoma County DPSs of the California tiger salamander from endangered to threatened status, and (3) to exempt existing routine ranching operations under Section 4(d) of the Act from the take prohibition of section 9 of the Act in the event the Service lists the Central California DPS and reclassify either the Santa Barbara County or Sonoma County DPSs from endangered to threatened (68 FR 28648). On August 4, 2004, we determined threatened status for the California tiger salamander rangewide (69 FR 47212). We also finalized the 4(d) rule for the species rangewide, which exempts existing routine ranching activities.

The purpose of this analysis is to estimate the economic impact of actions taken to protect the federally listed CTS and its habitat. It attempts to quantify the economic effects of the designation of critical habitat, as well as the economic effects of protective measures taken as a result of the listing of the CTS or other Federal, State, and local laws that also aid habitat conservation in the areas proposed for designation or exclusion. It looks retrospectively at costs that have been incurred since the date the species was listed, and it attempts to predict future costs likely to occur both as a result of the listing and of designation of CH after the designation is finalized.

Section 4(b)(2) of the ACT requires the Service to designate critical habitat on the basis of the best scientific data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within CH, provided the exclusion will not result in the extinction of the species.

This report is intended to assist the Secretary in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.[5] In addition, this information allows the Service to address the requirements of Executive Orders 12866 and 13211, and the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA).[6] This report also complies with direction from the U.S. 10th Circuit Court of Appeals that, when deciding which areas to designate as critical habitat, the economic analysis informing that decision should include "co-extensive" effects.[7]

SPECIES AND HABITAT DESCRIPTION

The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 8.2 inches, with males generally averaging approximately 8 inches total length and females averaging approximately 6.8 inches in total length. Their small eyes have black irises and protrude from the head. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides. The belly varies from almost uniform white or pale yellow to a variegated pattern of white or pale yellow and black.

Subadult and adult California tiger salamanders spend much of their lives in small mammal burrows found in the upland component of their habitat, particularly those of ground squirrels and pocket gophers. California tiger salamanders use both occupied and unoccupied small mammal burrows but, because burrows collapse within 18 months if not maintained, an active population of burrowing mammals is necessary to sustain sufficient underground habitat for the species. Once fall and winter rains begin, they emerge from these retreats on nights of high relative humidity and during rains to feed and to migrate to the breeding ponds. Adults and juveniles migrate long distances between upland habitat and breeding sites, dependent on local topography and vegetation, the distribution of ground squirrel or other rodent burrows, and climatic conditions. Males migrate before females and typically stay in ponds longer.

California tiger salamanders in Santa Barbara County inhabit low elevation (typically below 1,400 feet) vernal pools and seasonal ponds and the associated grassland, oak savannah, and coastal scrub plant communities of the Santa Maria, Los Alamos, and Santa Rita valleys in western Santa Barbara County. Currently, California tiger

[5] 16 U.S.C. §1533(b)(2).

[6] Executive Order 12866, "Regulatory Planning and Review," September 30, 1993; Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," May 18, 2001; 5. U.S.C. §§601 et seq ; and Pub Law No. 104-121.

[7] In 2001, the U.S. 10th Circuit Court of Appeals instructed the Service to conduct a full analysis of all of the economic impacts of proposed CHD, regardless of whether those impacts are attributable co-extensively to other causes (New Mexico Cattle Growers Ass'n v. U.S.F.W.S., 248 F.3d 1277 (10th Cir. 2001)).

salamanders in Santa Barbara County are distributed in six subpopulations in Santa Barbara County: western Santa Maria/Orcutt, eastern Santa Maria, western Los Alamos/Careaga, eastern Los Alamos, the Purisima Hills and the Santa Rita Valley.

APPROACH TO ESTIMATING ECONOMIC EFFECTS

This economic analysis considers both the economic efficiency and distributional effects that may result from efforts to protect the CTS and its habitat (hereinafter referred to collectively as "CTS conservation activities"). Economic efficiency effects generally reflect "opportunity costs" associated with the commitment of resources required to accomplish species and habitat conservation. For example, if activities that can take place on a parcel of private land are limited as a result of the designation or the presence of the species, and thus the market value of the land is reduced, this reduction in value represents one measure of opportunity cost or change in economic efficiency. Similarly, the costs incurred by the regulated community to consult with the Service under section 7 represent opportunity costs of CTS conservation activities.

This analysis also addresses how the impacts of CTS conservation activities are distributed, including an assessment of any local or regional impacts of conservation activities and the potential effects of conservation activities on small entities and the energy industry. This information can be used by decision-makers to assess whether the effects of conservation activities might unduly burden a particular group or economic sector. For example, while habitat conservation activities may have a relatively small impact when measured in terms of changes in national economic efficiency, individuals employed in a particular sector of the economy in the geographic area of the designation may experience relatively greater impacts. The difference between economic efficiency effects and distributional effects, as well as their application in this analysis, are discussed in greater detail below.

This analysis also endeavors to capture the net economic impact imposed on regulated entities and the regional economy resulting from CTS conservation efforts. To the extent possible, the estimated net economic impact should account for any offsetting benefits that might accrue to the regulated community due to their CTS habitat preservation activities. For example, in certain cases real estate development that effectively incorporates CTS habitat set-aside on-site might realize a value premium typically associated with additional open space. Any such premium will offset land preservation costs borne by landowners/developers. Unfortunately, reliable data revealing the premium that the market places on nearby open space in Southern California is not readily available. Moreover, the value premium associated with habitat preservation is likely to be limited given that the recreational uses associated with habitat preserves are generally restricted.

EFFICIENCY EFFECTS

Based on guidance from the Office of Management and Budget (OMB) and in compliance with Executive Order 12866 "Regulatory Planning and Review," Federal agencies measure changes in economic efficiency in order to understand how society, as a whole, will be affected by a regulatory action.[8] In the context of regulations that protect CTS habitat, these efficiency effects represent the opportunity cost of resources used or benefits foregone by society as a result of the regulations. Economists generally characterize opportunity costs in terms of changes in producer and consumer surpluses in affected markets.[9]

In some instances, compliance costs may provide a reasonable approximation for the efficiency effects associated with a regulatory action. For example, where an activity proposed by a landowner or manager in CH requires the authorization of or funding by a federal agency, the federal agency must enter into a consultation with the Service to ensure that the activity will not adversely modify critical habitat. The effort required for the consultation represents an economic opportunity cost, because the landowner or manager's time and effort would have been spent in an alternative activity had the parcel not been included in the designation. When compliance activity is not expected to significantly affect markets—that is, not result in a shift in the quantity of a good or service provided at a given price, or in the quantity of a good or service demanded given a change in price—the measurement of compliance costs can provide a reasonable estimate of the change in economic efficiency.

Where CTS conservation activities are expected to significantly impact a market, it may be necessary to estimate changes in producer and consumer surpluses. For example, a designation that precludes the development of large areas of land may shift the price and quantity of housing supplied in a region. In this case, changes in economic efficiency (i.e., social welfare) can be measured by considering changes in producer and consumer surplus in the real estate market.

[8] Executive Order 12866, "Regulatory Planning and Review," September 30, 1993; U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf.

[9] Consumer surplus is the difference between the total value consumers receive from a particular good and the total amount they pay for that good. When the price of a good goes up, consumer surplus falls since a portion of the consumers fall out of the market altogether and the remainder pay a higher price. Producer surplus, alternatively, is the difference between the total market value associated with a particular level of output and the total market costs associated with supplying that level of output. For additional information on the definition of "surplus" and an explanation of consumer and producer surplus in the context of regulatory analysis, see Gramlich, Edward M., A Guide to Benefit-Cost Analysis (2nd Ed.), Prospect Heights, Illinois: Waveland Press, Inc., 1990; and U.S. 240-R-00-003, September 2000, available at http://yosemite.epa.gov/ee/epa/eed.nsf/ webpages/Guidelines.html.

This analysis begins by measuring costs associated with measures taken to protect species and habitat. As noted above, in some cases, compliance costs can provide a reasonable estimate of changes in economic efficiency. However, if the cost of conservation measures is expected to significantly impact markets, the analysis will consider potential changes in consumer and/or producer surplus in affected markets.

DISTRIBUTIONAL AND REGIONAL ECONOMIC EFFECTS

Measurements of changes in economic efficiency focus on the net impact of conservation activities, without consideration of how certain economic sectors of groups of people are affected. Thus, a discussion of efficiency effects alone may miss important distributional considerations. OMB encourages Federal agencies to consider distributional effects separately from efficiency effects.[10] This analysis considers several types of distributional effects, including impacts on small entities; impacts on energy supply, distribution, and use; and regional economic impacts. It is important to note that these are fundamentally different measures of economic impact than efficiency effects, and thus cannot be added to or compared with estimates of changes in economic efficiency.

Impacts on Small Entities and Energy Supply, Distribution, and Use

This analysis considers how small entities, included small businesses, organizations, and governments, as defined by the Regulatory Flexibility Act (RFA), might be affected by proposed CHD.[11] In addition, in response to Executive Order 13211 "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," this analysis considers the impacts of critical habitat on the energy industry and its customers.[12]

SCOPE OF THE ANALYSIS

This analysis attempts to quantify economic effects of the designation of critical habitat, as well as the economic effects of the protective measures taken as a result of the listing or other Federal, State, and local laws that also aid habitat conservation in the areas proposed for designation. Because all CTS-related species and habitat protection efforts likely contribute to the efficacy of the proposed CTS CHD efforts, the impacts of these actions may be considered relevant for understanding the full impact of conservation efforts for the CTS habitat.

[10] U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available CTS http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf.

[11] 5 U.S.C. § 601 et seq.

[12] Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," May 18, 2001.

SECTIONS OF THE ACT RELEVANT TO THE ANALYSIS

The analysis focuses on activities that are influenced by the Service through sections 4, 7, 9, and 10 of the ESA. Section 4 of the Act focuses on the listing and recovery of endangered and threatened species, as well as the designation of critical habitat. In this section, the Secretary is required to list species as endangered or threatened "solely on the basis of the best available scientific and commercial data."[13] The protections afforded to threatened and endangered species and their designated habitat are described in sections 7, 9, and 10 of the Act, and economic impacts resulting from these protections are the focus of this analysis:

- Section 7 of the Act requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of the species' designated critical habitat. The administrative costs of these consultations, along with the costs of project modifications resulting from these consultations, represent compliance costs associated with the listing of the species and the designation of critical habitat.

- Section 9 defines the actions that are prohibited by the Act. In particular, it prohibits the "take" of endangered wildlife, where "take" means to "harass, harm, pursue, or collect, or to attempt to engage in any such conduct."[14] The economic impacts associated with this section are manifest in sections 7 and 10, though these impacts do not directly flow from or depend on the designation of CH.

- Under section 10(a)(1)(B) of the Act, a non-Federal entity (i.e., a landowner or local government) may develop a habitat conservation plan (HCP) for an endangered or threatened species in order to meet the conditions for issuance of an incidental take permit in connection with the development and management of a property. The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that the effects of incidental take are adequately minimized and mitigated. These economic impacts do not directly flow from or depend on the designation of CH; however, designation of critical habitat may influence the conservation measures provided under habitat conservation plans. Federal agencies do not develop HCPs, but instead obtain permission for incidental take through the section 7 consultation process.

[13] 16 U.S.C. 1533.
[14] 16 U.S.C. 1538 and 16 U.S.C. 1532.

OTHER RELEVANT REGULATIONS AND PROTECTION EFFORTS

The protection of listed species and habitat is not limited to the Act. Other Federal agencies, as well as state and local governments, may also seek to protect the natural resources under their jurisdiction.[15] In general, economic impacts will be evaluated regardless of whether or not species protection measures required by the Act are also required by other Federal agencies or state and local governments. The impact of these protection measures will be treated as "co-extensive" with or attributable to CTS listing and designation. Examples of the type of regulations that fall into this category include, but are not limited to, the following:

- Section 404 of the Clean Water Act;
- California Environmental Quality Act (CEQA);

In some cases, non-habitat related regulations will limit land use activities within CH in ways that will directly or indirectly, benefit the CTS or its habitat. For example, local zoning ordinances that specify the amount and type of development that may occur, if any, in a certain area may benefit the CTS and its habitat. The impact of these type of local, non-habitat related regulations and land use controls are not considered as "co-extensive" with or attributable to the CTS listing and designation. Examples of these types of local regulations or controls include, but are not limited to, the following:

- Local zoning ordinances
- Local hillside of view shed protection ordinances
- Agricultural preservation provisions

ADDITIONAL ANALYTICAL CONSIDERATIONS

This analysis also considers other types of economic impacts that can be a consequence of CTS CHD. These may include loss in project value due to stigma, uncertainty, and project delay, as described further below.

Stigma

Stigma refers to the change in economic value of a particular project or activity due negative (or positive) perceptions of the role critical habitat will play in developing, implementing, or conducting it. For example, changes to private property values associated with developer attitudes about the limits and costs of implementing a project in critical habitat are known as "stigma" impacts.

[15]For example, the Sikes Act Improvement Act (Sikes Act) of 1997 requires Department of Defense (DoD) military installations to develop Integrated Natural Resources Management Plans (INRMPs) that provide for the conservation, protection, and management of wildlife resources (16 U.S.C. §§ 670a—670o). These plans must integrate natural resource management with the other activities, such as training exercises, taking place CTS the facility.

Time Delay and Regulatory Uncertainty

Uncertainty and delay represent actual (as opposed to perceived) impacts due to additional risk with regard to the amount, timing, or cost associated with a project or activity. For example, time delays can be caused by the consultation process or compliance with other regulations. Regulatory uncertainty costs can occur in anticipation of having to modify project parameters (e.g., retaining outside experts of legal counsel to better understand their responsibilities with regard to critical habitat).

Other Impacts

Under certain circumstances, the designation of critical habitat may provide new information to a community about the sensitive ecological nature of a geographic region, potentially triggering additional economic impacts under other State or local laws. In cases where these costs would not have been triggered "but for" the listing and/or designation of critical habitat, they are included in this economic analysis.[16] In this regard, the analysis considers the extent to which the CTS designation might trigger the completion of an Environmental Impact Report under CEQA.

BENEFITS

The published economics literature has documented that real social welfare benefits can result from the conservation and recovery of endangered and threatened species. These benefits may not be solely attributable to critical habitat; such benefits have also been ascribed to preservation of open space and biodiversity, both of which are associated with the species conservation. Likewise, regional economies and communities can benefit from the preservation of healthy populations of endangered and threatened species, and the habitat on which these species depend.

In Executive Order 12866, OMB directs Federal agencies to provide an assessment of costs and benefits of a proposed regulatory action.[17] However, in its guidance for implementing Executive Order 12866, OMB acknowledges that often, it may not be feasible to monetize, or even quantify, the benefits of environmental regulations.[18] Where benefits cannot be quantified, OMB directs agencies to describe the benefits of a proposed regulation qualitatively. *Given the limitations associated with estimating the benefits of proposed CHD for the CTS, the Service believes that the benefits of proposed CHD are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.*

[16] Although the Service provided a range for CTS in connection with the original listing, the area was quite large and did not appear to provide the public with a sense of where CTS was likely to be. CH, on the other hand, is limited to specific areas and is therefore more likely to trigger CEQA review.
[17] Executive Order 12866, "Regulatory Planning and Review," September 30, 1993.
[18] U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf.

ANALYTIC TIME FRAME

The analysis looks prospectively at future costs associated with the listing, critical habitat, and other related CTS protections. The analysis examines economic impacts based on activities that are "reasonably foreseeable," including but not limited to activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Additionally, the analysis looks retrospectively at all costs that have occurred since the time that the CTS listing was finalized in September 2000. Accordingly, the analysis bases estimates on activities that span the 2000 to 2030 time frame. The year 2030 is the latest period for which local projections of growth and development in the areas encompassing CH are available.

INFORMATION SOURCES

This analysis relies on data and information from a wide variety of sources. Communications with and data provided by personnel from the Service, including maps, Biological Opinions (BOs), and other material directly related to the proposed designation provide one source of information. Information was also obtained from a variety of other Federal, State, and local agencies, as well as independent or private sector entities and individuals. The range of entities that provided data and information for this analysis include, but are not limited to, the following:

- County of Santa Barbara;
- Santa Barbara Association of Governments;
- Santa Maria Public Airport District;
- Laguna County Sanitation District; and
- The California Department of Transportation.

The report provides citations where appropriate. In addition, the reference section at the end of this document provides a list of sources of information relied upon.

2. GEOGRAPHIC AND ECONOMIC BACKGROUND

This chapter describes the proposed CTS critical habitat units in terms of their geography, the type of land uses and activities currently in place, and the economic conditions and trends in the broader region.

OVERVIEW OF CRITICAL HABITAT UNITS

The proposed CH for CTS consists of six units, totaling approximately 13,920 acres, in northern Santa Barbara County. Two of the six units are near the City of Santa Maria, two are near the town of Los Alamos along Highway 101, and two are near Highway 246 between the cities of Lompoc and Buellton. **Figure 1** illustrates the location of the six units and their relationship to nearby towns and major highways.

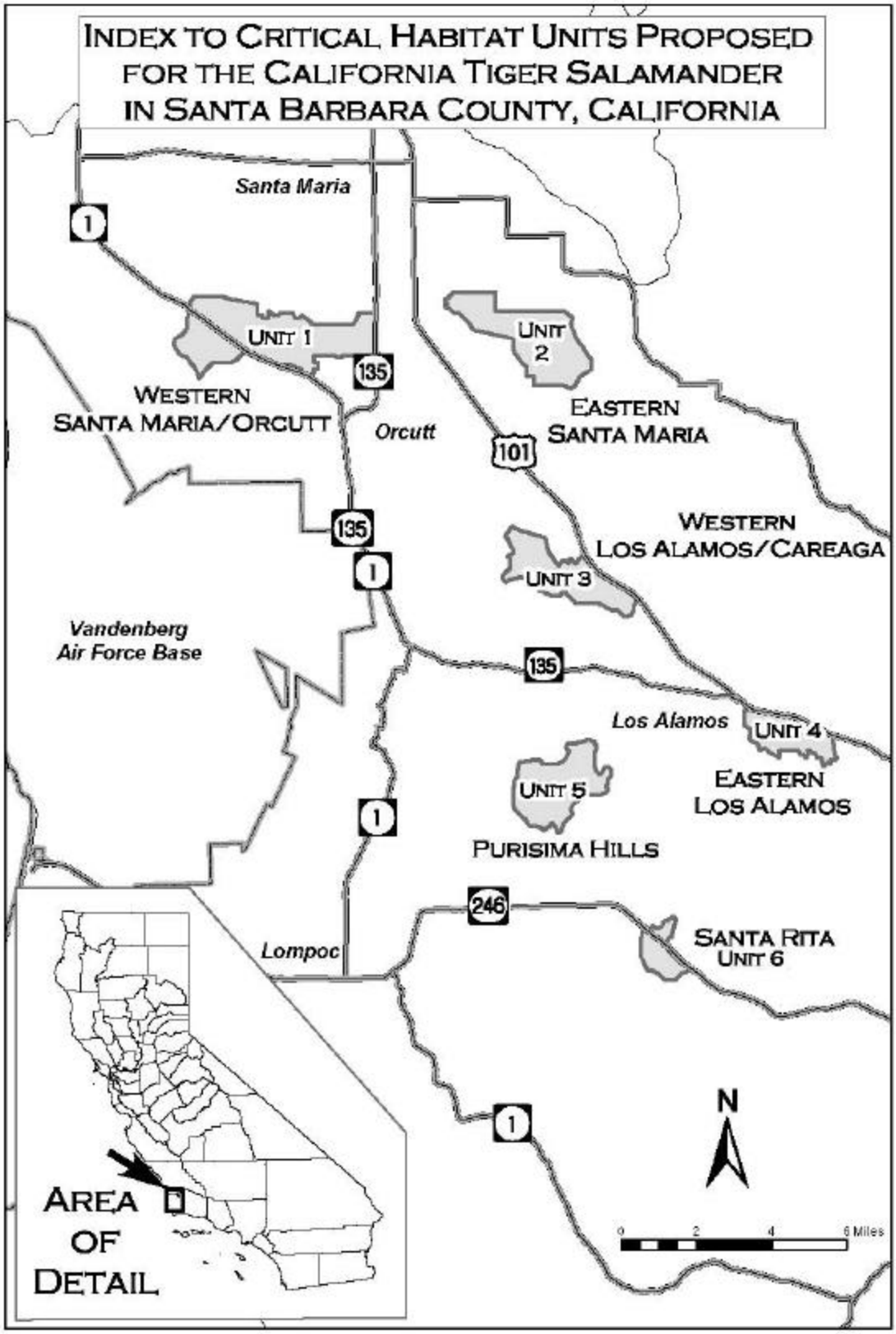
The Service arrived at the six proposed CH units by first drawing a circle around each of the known critical vernal pool complexes representing the estimated maximum distance a salamander will migrate away from breeding pools. From this area the Service removed areas that are not suitable as habitat (largely because the soil conditions or other factors prevent the creation of the mammal burrows salamanders use as habitat) or are inaccessible to the Salamanders because of intervening obstacles.

ECONOMIC CONTEXT

Historically northern Santa Barbara County has been a rural, agricultural economy, with extensive grazing and row crops. Oil production played an important role after its discovery in 1904 but has decreased gradually and its current role in the economy is negligible. Over the past few decades the agricultural economy has grown more intensive, both in terms of more intense farming of individual acres and an expansion of land under cultivation. Crops include strawberries, wine grapes, celery, lettuce, peas, squash, cauliflower, spinach, broccoli and beans. Cattle grazing has also been extensive throughout the County, and continues to the present.

Since the late 1980s, a number of vineyards have opened to the east of Santa Maria and in central Santa Barbara County in the Santa Ynez Valley, between Santa Maria and Santa Barbara. Some of these vineyards have been established on existing farmland, and others have been constructed in undeveloped areas, especially in the foothills. The vineyards have largely served to provide commodity grapes for vintners in northern California, especially Napa and Sonoma counties, but more recently vintners in Santa Barbara County have had success marketing wine under their own regional identification. Where a winemaking operation is successful, it generates significantly

FIGURE 1


INDEX TO CRITICAL HABITAT UNITS PROPOSED FOR THE CALIFORNIA TIGER SALAMANDER IN SANTA BARBARA COUNTY, CALIFORNIA
Santa Maria
1
UNIT 1
135
WESTERN SANTA MARIA/ORCUTT
Orcutt
UNIT 2
EASTERN SANTA MARIA
101
WESTERN LOS ALAMOS/CAREAGA
UNIT 3
135
1
Vandenberg Air Force Base
135
Los Alamos
UNIT 4
EASTERN LOS ALAMOS
UNIT 5
PURISIMA HILLS
1
246
Lompoc
SANTA RITA UNIT 6
1
AREA OF DETAIL
N
0 2 4 6 Miles

greater profits per acre than row crops or grazing. The pace of new vineyard conversion has abated in recent years due in part to a downturn in the California grape industry, but the long-term potential for further growth in the sector remains.

The economy of northern Santa Barbara County also benefited from activity related to Vandenberg Air Force Base, which served as a major testing and launch facility for military satellites and strategic missiles through the late 1980s. Soon after the end of the cold war activity at Vandenberg declined significantly, and the Cities of Santa Maria and Lompoc, along with the surrounding communities, experienced and economic downturn from the loss of jobs on the base and related to base activities. More recently activity at Vandenberg has picked up, with commercial and military satellite launches conducted by the Air Force Space Wing's 30th Space Command.

The City of Santa Maria has served as the service center for that agricultural economy and during the last half of the 20th century began to diversify its economy. After the reduction of activity at Vandenberg, the industrial economy in Santa Maria declined precipitously, leading to low occupancy and lease rates in existing industrial space. However, over the past five years activity has increased to the point that demand exists for new industrial development.

In addition to economic growth in the Santa Maria Valley, Santa Maria has seen population and housing growth driven by job growth in southern Santa Barbara County. House prices in Santa Maria are significantly lower than the South County, which includes the City of Santa Barbara, one of the most expensive housing markets in the U.S. Currently, Santa Maria is the fastest growing city in Santa Barbara County, and is expected to grow larger than the City of Santa Barbara, becoming the largest city in the County within a decade.

According to the State Department of Finance, Santa Maria has grown from a population of 63,527 in 1990 to 82,148 in 2003, an increase of 29.3 percent. Over the same period the City of Santa Barbara grew from a population of 88,440 in 1990 to 90,464 in 2003, an increase of 2.3 percent. Much of the agricultural land adjoining the City of Santa Maria is currently under Williamson Act restrictions, and often enters the entitlement and development process soon after those restrictions cease, or in some cases even in anticipation of the end of use restrictions.[19]

DESCRIPTION OF UNITS AND AFFECTED ACTIVITIES

Through examination of relevant biological opinions and interviews with Service staff and the regulated community, EPS has identified major land uses and activities affected by CTS protections. Subsequent chapters estimate the economic costs of CTS

[19] The Williamson Act provides for reduced property tax payments in exchange for a restricting land to agricultural uses. The restrictions last ten years, and are renewed annually with a ten year notice required for cessation of the restrictions.

conservation measures on an activity-by-activity basis. The land uses and activities addressed in this analysis are summarized in **Exhibit 1**. Further detail on the significance of these activities in each of the proposed CTS critical habitat units, and the past consultations related to these activities, is provided below.

Exhibit 1. California Tiger Salamander Activity Categories

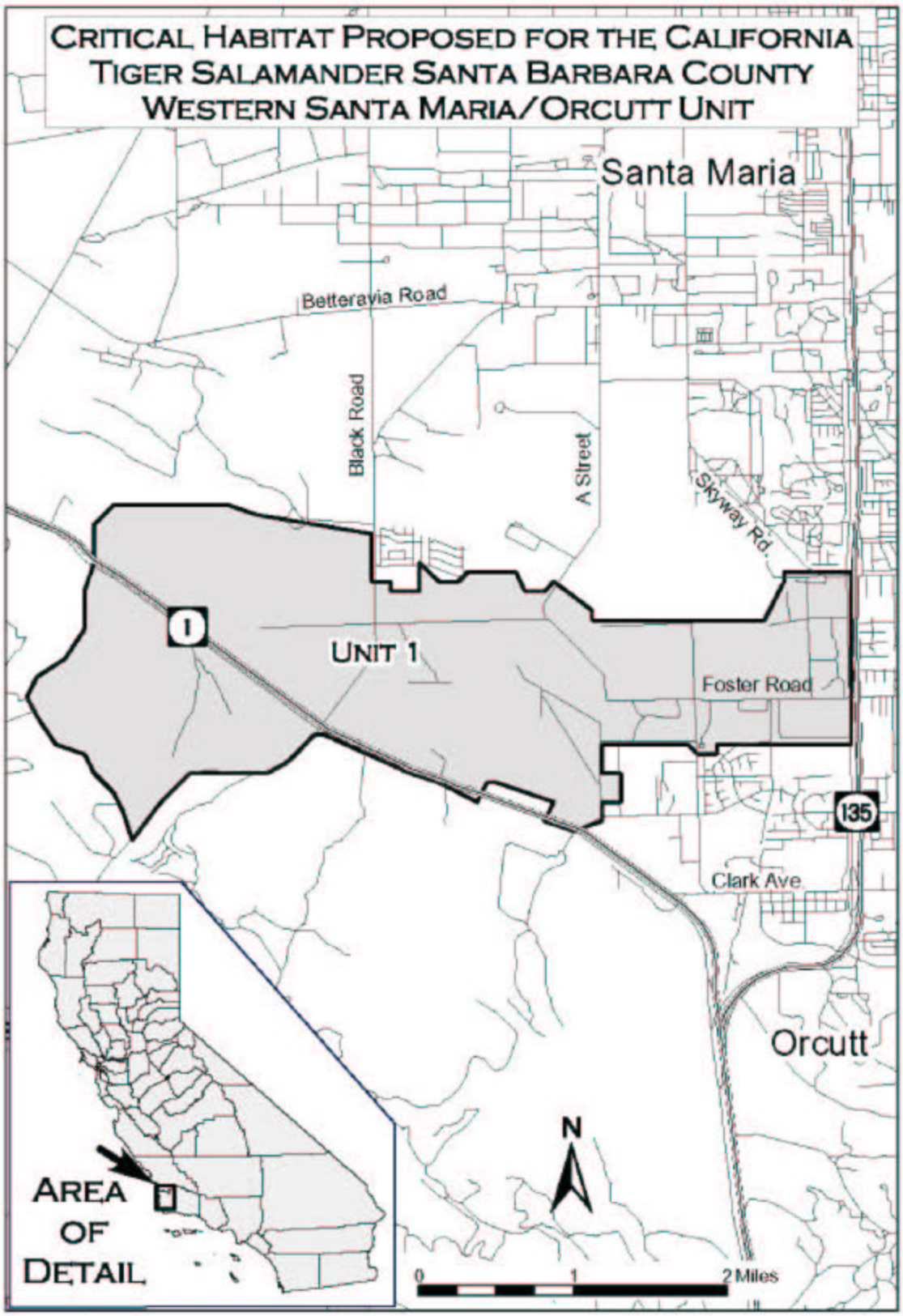
Activity	Sub-Activity	Small Business Impacts
Development Projects	Residential and Nonresidential Development	Potential impact on small construction contactors and developers/landowners
	Utilities Work	None
Agriculture/Grazing	Agricultural Operations	Potential impact on small agricultural producers and ranchers.
	Agricultural Development (conversion to cultivation or vineyards)	Potential impact on small construction contractors and developers/landowners
	Agriculture and Grazing Activities	Potential impacts on small agricultural producers and ranchers
Road Projects	New Road Construction	None
	Road Widening/Maintenance	None
	Wastewater Projects	None
	New Bridge Construction	None
	Bridge Replacement	None
Other Projects	Exotic Plant Removal	None
	Recreation	None
	Wastewater Projects	None
	Research	None

570 UNIT BY UNIT DESCRIPTIONS

Unit 1: Western Santa Maria/Orcutt

As shown on **Figure 2**, Unit One consists of 4,349 acres to the west and southwest of the City of Santa Maria. The land comprising the unit is currently a mix of residential and agricultural uses, with some commercial and institutional use and some land currently vacant. Of particular note is the fact that this Unit abuts the Santa Maria Airport, which has been negotiating with the Service on a project to construct a research and industrial park and golf course encompassing 400 acres within the Unit. The County has proposed constructing a corporate yard and animal shelter on land within Unit One.

FIGURE 2


CRITICAL HABITAT PROPOSED FOR THE CALIFORNIA TIGER SALAMANDER SANTA BARBARA COUNTY WESTERN SANTA MARIA/ORCUTT UNIT
Santa Maria
Betteravia Road
Black Road
A Street
Skyway Rd.
UNIT 1
Foster Road
1
135
Clark Ave
Orcutt
AREA OF DETAIL
N
0
1
2 Miles

Additionally, the County's Orcutt community plan calls for development of up to 3,000 residential units within the Unit. Other potential development projects include Union Valley Parkway and an expansion of the Laguna County Sanitation District's wastewater treatment plant. The City of Santa Maria may annex portions of the Unit for residential development, converting agricultural uses to tract homes as has been done on many sites west of the City and north of Unit One. The Service has identified Unit One as particularly critical because it comprises the largest number of occupied ponds on the Orcutt Dune Sheet, which is thought to be the original habitat for CTS in Santa Barbara County.

Unit One has had five formal biological opinions[20] and a number of informal consultations, as described below:

- On May 12, 2004 the Service issued a biological opinion to the City of Santa Maria regarding the proposed funding by the U.S. Department of Housing and Urban Development of the City's construction of food bank facilities along Foster Road. The Service found that the project proponent would minimize the effects of the project on CTS and that "a small portion of suitable CTS upland habitat would be removed as a result of the construction of the food bank facilities."[21]

- On September 23, 2003, the Service issued a biological opinion to the Army Corps of Engineers regarding the repair of a culvert, headwall and road embankment near a Laguna Canyon Sanitation District pond. The Service found that the project would not have an adverse effect on CTS, but required a number of minimization measures during construction, all of which were imposed to minimize impacts on the California red-legged frog.

- On December 18, 2002, the Service issued a biological opinion to the Federal Highway Administration regarding the replacement of a road bridge for Black Road over Orcutt Creek in Orcutt, southwest of Santa Maria. The Service determined that, although the project would result in some disruption of the habitat and breeding activities of CTS, the effects were not likely to jeopardize the continued existence of the species. The Service did not specify any modifications to the project, other than measures specified to minimized impact on CTS and the California red-legged frog during construction.

- On April 27, 2001, the Service issued a biological opinion to the Environmental Protection Agency regarding the upgrade and expansion of the Laguna Canyon Sanitation District's wastewater treatment facility. The Service determined that

[20] All of the formal biological opinions issued to date have been related to activity within Unit One.
[21] Biological Opinion on the Food Bank Facility on Foster Road in the City of Santa Maria, Santa Barbara County, California (1-8-04-F-8), May 12, 2004. Due to the timing of the completion of this BO, it is only addressed in this Chapter of the DEA.

the project was not likely to jeopardize the continued existence of CTS, and that the measures proposed to minimize the impact during construction would minimize the effects of the action on the CTS.

- On March 15, 2001, the Service issued an opinion to the Army Corps of Engineers regarding the construction of a new trunk sewer line for the Laguna County Sanitation District and its main pump station, a total of 3.42 miles. The project proposal included a number of measures to minimize the effects of the project on CTS (and the California red-legged frog) during construction. The Service determined that the project would not be likely to jeopardize the continued viability of CTS.

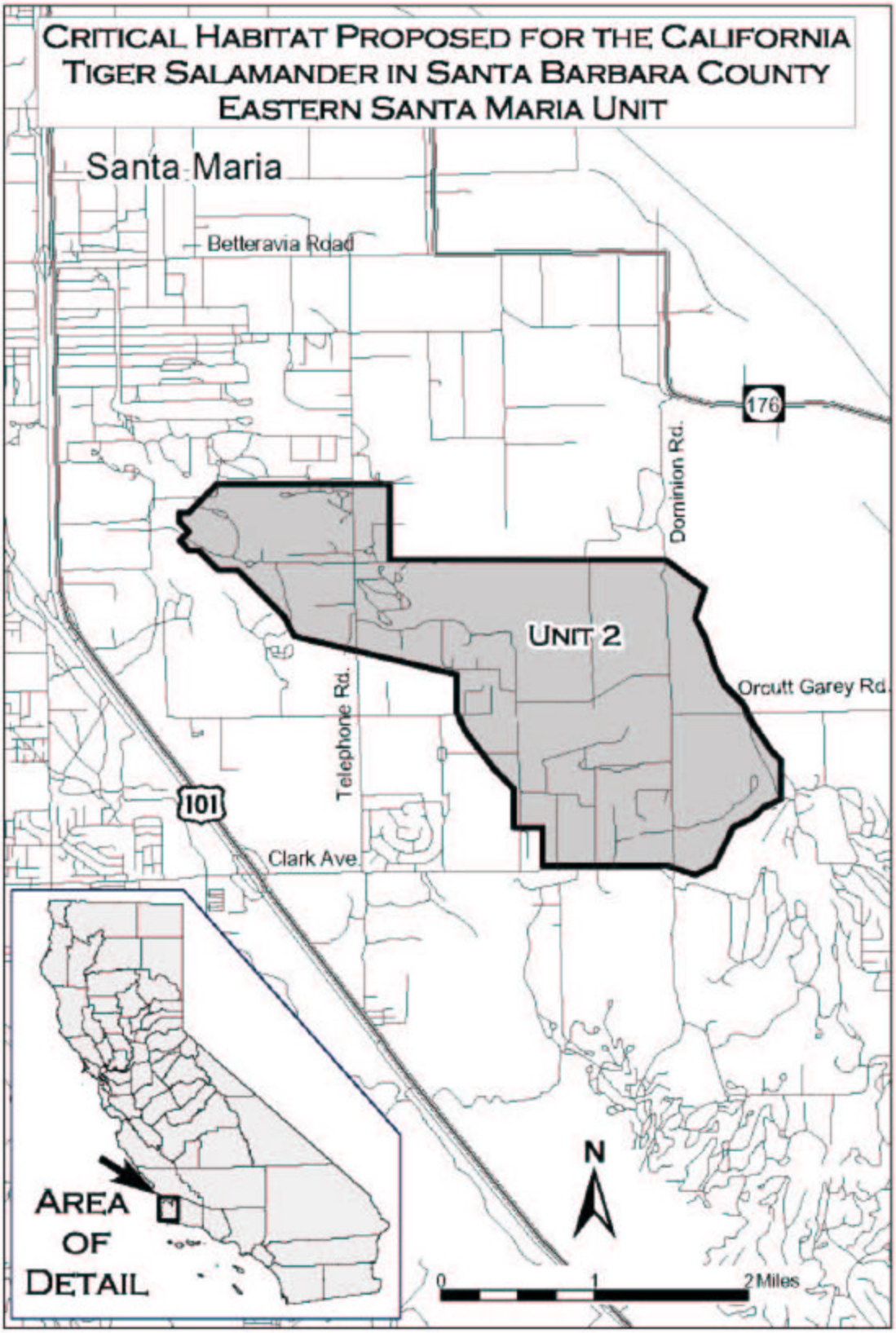
- On July 2, 2003, the Service issued a nonconcurrence letter to the County of Santa Barbara regarding the construction of a public works administrative services building and animal shelter near the Santa Maria Airport. In the letter the Service declined to concur with the County that the project would not result in take of CTS. The Service recommended that the County conduct protocol surveys on the site to confirm the absence of CTS or apply for an incidental take permit. As discussed elsewhere in this report, to date the County has not elected to pursue either of these options.

It should be noted that there are no formal biological opinions regarding development in Unit One, or any of the other units. At least one other federal consultation addressing effects to CTS is currently in progress, but until the request for consultation is submitted to the Service and a biological opinion is issued, its details are uncertain. This notwithstanding, the vast majority of development activity, and Service attention, has been focused on Unit One. This reflects the fact that the areas west of Santa Maria and around Orcutt have experienced the strongest development pressure, especially for residential units. This pressure is expected to continue. The City of Santa Maria expects to annex land in the area, and the County of Santa Barbara is planning for the growth of Orcutt over the coming ten years.

Unit 2: Eastern Santa Maria

As shown on **Figure 3**, Unit Two consists of 2,985 acres to the southeast of the City of Santa Maria. The area is bordered by Highway 101 to the west, the Solomon Hills to the south, the Sisquoc River to the east and the Santa Maria River floodplain to the north. The land within Unit Two is largely agricultural, including a variety of row crops and grazing activities, along with a vineyard that is not currently in production. A large residential and commercial project is likely to be proposed on part of Unit Two near Highway 101 (Bradley Ranch), and a number of smaller projects are possible, including individual low-density residential projects and a radio tower. The pressure for

FIGURE 3


CRITICAL HABITAT PROPOSED FOR THE CALIFORNIA TIGER SALAMANDER IN SANTA BARBARA COUNTY EASTERN SANTA MARIA UNIT
Santa Maria
Betteravia Road
176
Dominion Rd.
UNIT 2
Orcutt Garey Rd.
Telephone Rd.
101
Clark Ave.
AREA OF DETAIL
N
0
1
2 Miles

residential development is not as strong in Unit Two as in Unit One, and many of the agricultural uses would be likely to remain even in the absence of CTS and CH. There have been no formal BOs addressing the effects to CTS in Unit Two.

Unit 3: Western Los Alamos

As shown in **Figure 4**, Unit Three consists of 2,181 acres to the west of the town of Los Alamos and Highway 101. Unit Three contains nine identified breeding ponds, and extensive grazing land that can, and likely does, serve as CTS habitat. The southeastern half of Unit Three was proposed for conversion to vineyards, and the Service and the applicant had agreed upon a project plan involving some of the land undergoing vineyard conversion, and some of the land being set aside in perpetuity for CTS; however, the final plans were not submitted to the Service to initiate consultation. There have been no formal BOs regarding Unit Three.

Unit 4: Eastern Los Alamos

As shown in **Figure 5**, Unit Four consists of 1,302 acres to the southeast of the town of Los Alamos. According to the Service, much of the property within Unit Four was purchased for vineyard development just before CTS was listed in 2000. The property owner has indicated to the Service that it intends to develop an HCP to allow for vineyard development, but the Service has not received a permit application. The property is currently used for grazing and a small vineyard. There have been no formal BOs regarding Unit Four.

Unit 5: Purisima Hills

As shown in **Figure 6**, Unit Five consists of 2,359 acres of land in the Purisima Hills, northeast of the City of Lompoc and north of highway 246. The terrain of this unit is quite rugged, and land is used for grazing. All of the known breeding pools in Unit Five are man made, largely to provide water to grazing livestock. Because of the terrain, there is little possibility of further development, either through a change of use or intensification of the current grazing activity. There have been no formal BOs regarding Unit Five.

Unit 6: Santa Rita Valley

As shown in **Figure 6**, Unit Six consists of 744 acres straddling Highway 246 between the cities of Buellton and Lompoc. The land uses in Unit Six include low density residential, grazing land, equestrian uses and a vineyard. There are no current development proposals for this area, and the uses are consistent with zoning. There are plans, however, to widen Highway 246. There have been no formal BOs regarding Unit Six.

FIGURE 4

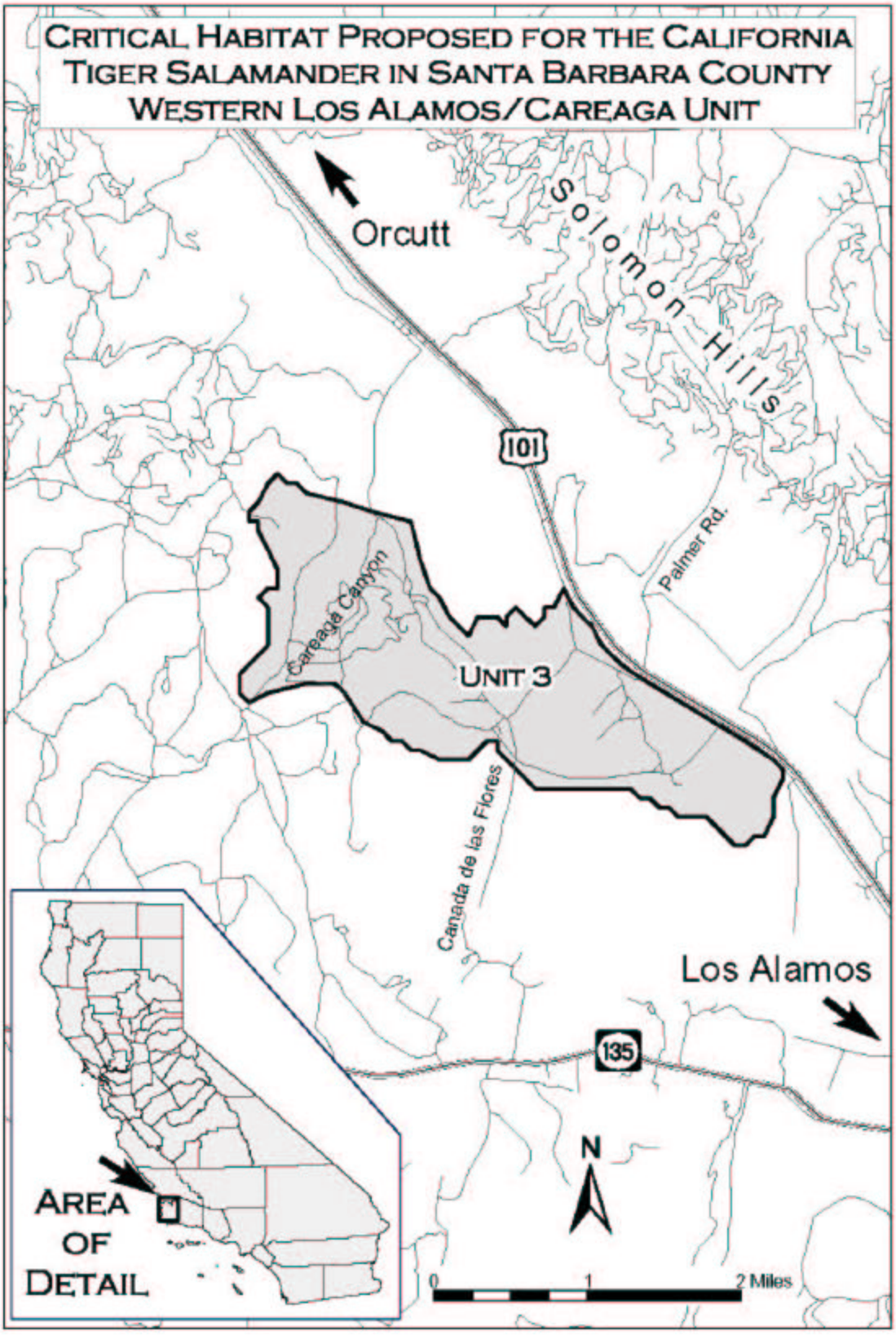

CRITICAL HABITAT PROPOSED FOR THE CALIFORNIA TIGER SALAMANDER IN SANTA BARBARA COUNTY WESTERN LOS ALAMOS/CAREAGA UNIT
Orcutt
Solomon Hills
101
Palmer Rd.
Careaga Canyon
UNIT 3
Canada de las Flores
Los Alamos
135
N
AREA OF DETAIL
0
1
2 Miles

FIGURE 5

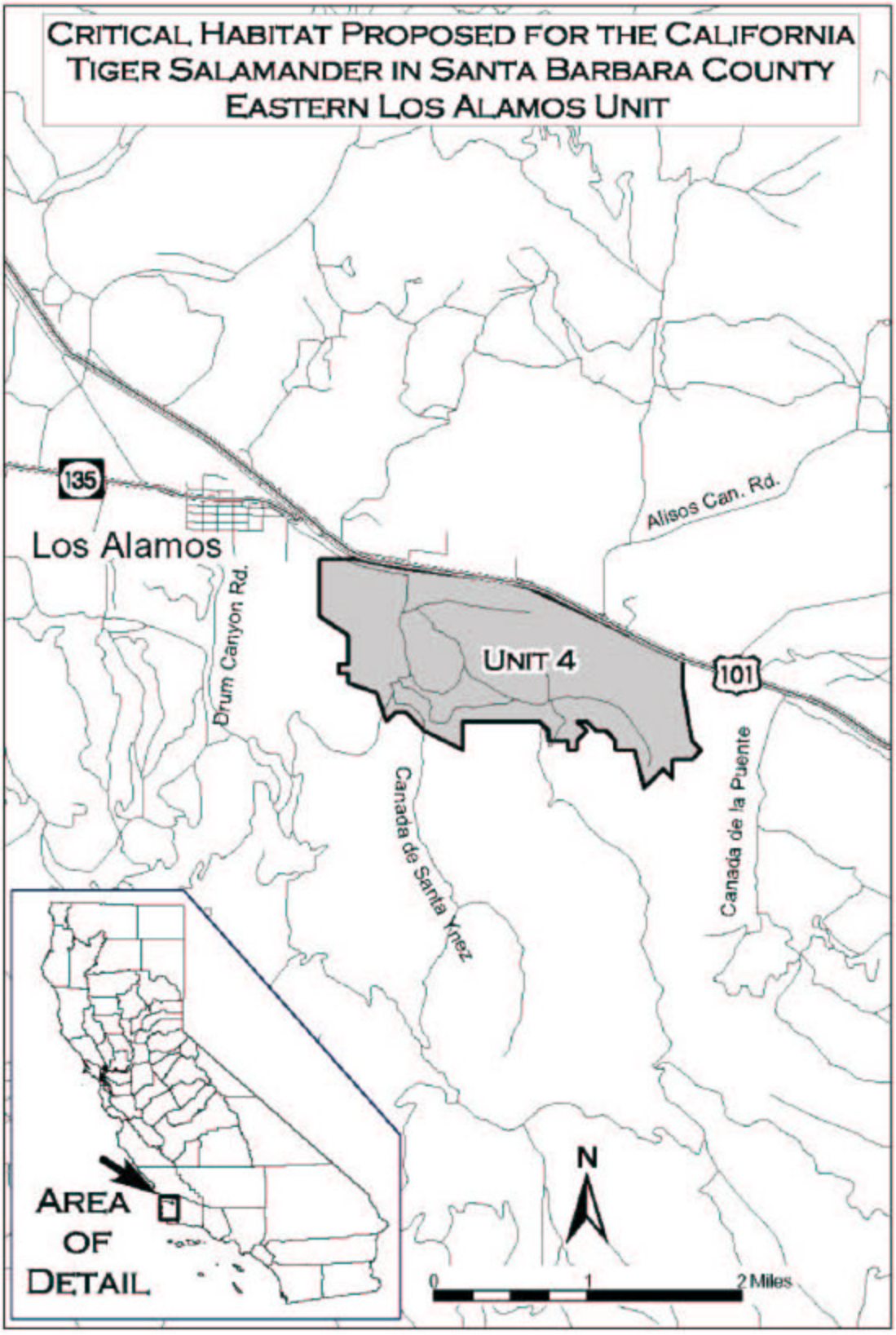
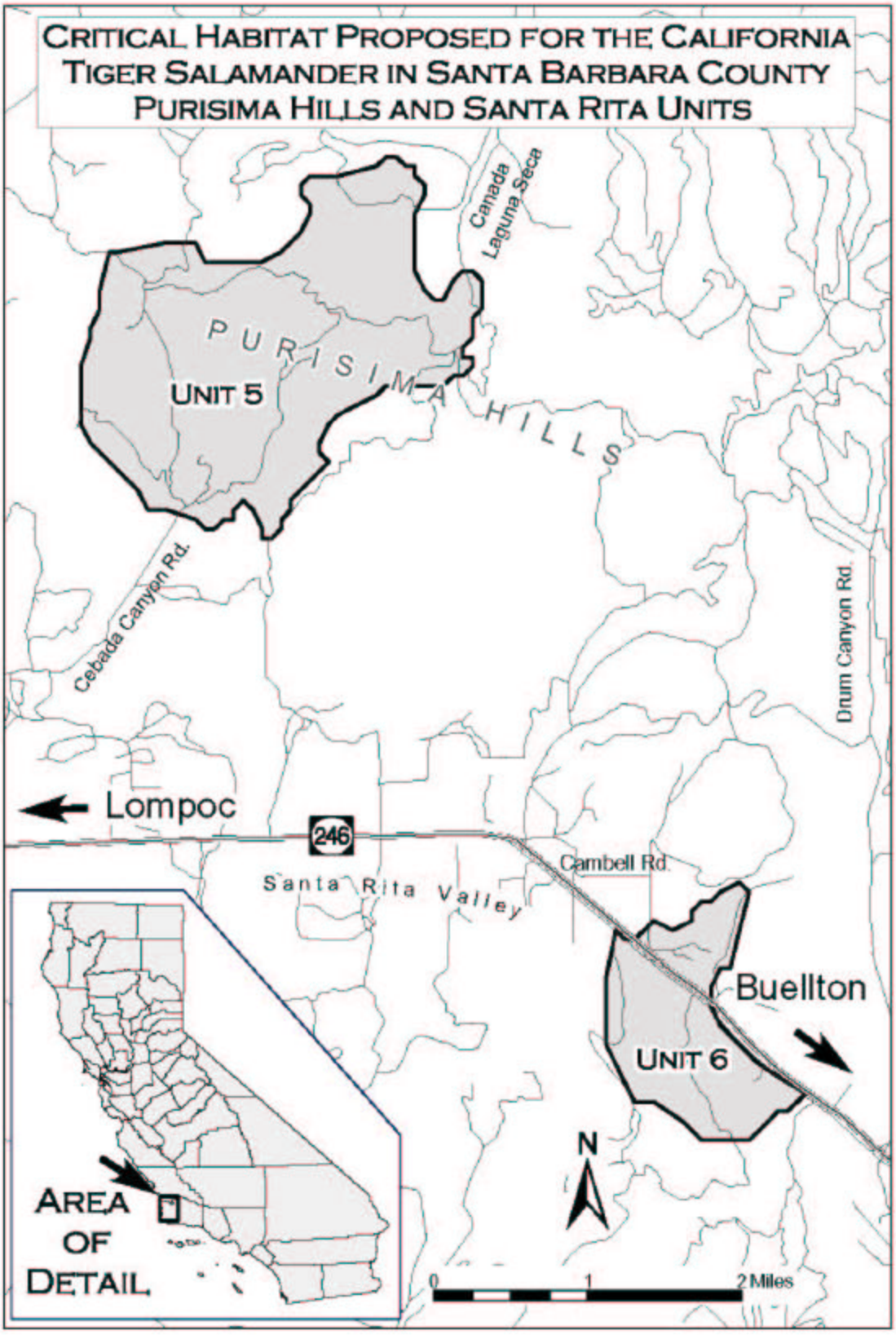

CRITICAL HABITAT PROPOSED FOR THE CALIFORNIA TIGER SALAMANDER IN SANTA BARBARA COUNTY EASTERN LOS ALAMOS UNIT
135
Los Alamos
Drum Canyon Rd.
Alisos Can. Rd.
UNIT 4
101
Canada de Santa Ynez
Canada de la Puente
AREA OF DETAIL
N
0
1
2 Miles

FIGURE 6


CRITICAL HABITAT PROPOSED FOR THE CALIFORNIA TIGER SALAMANDER IN SANTA BARBARA COUNTY PURISIMA HILLS AND SANTA RITA UNITS
Canada Laguna Seca
PURISIMA HILLS
UNIT 5
Cebada Canyon Rd.
Drum Canyon Rd.
Lompoc
246
Santa Rita Valley
Cambell Rd.
Buellton
UNIT 6
N
AREA OF DETAIL
0
1
2 Miles

3. ECONOMIC IMPACT TO REAL ESTATE DEVELOPMENT

This chapter evaluates how actions taken to protect the CTS and its habitat may affect real estate development activities and markets. Specifically, it focuses on the future effect that CTS conservation efforts within proposed CH might have on the supply and demand for land used in residential and commercial real estate development.[22]

710 An overview of our general methodology and approach for evaluating the economic impact of CTS protection on private development is provided below, followed by a presentation of the analysis and estimated total economic costs.

ANALYTICAL APPROACH

Potential modifications to land use projects stemming from CTS conservation efforts can affect landowners, consumers, and real estate markets in general. The total economic impact will depend on the scope of CTS conservation efforts, pre-existing land use and regulatory controls in the region, and the nature of regional land and real estate markets. In order to accurately account for all of these factors, and to estimate the corresponding economic impacts, this evaluation employs a series of methodological tasks as described
720 below.

1. Determine Overlap between Proposed CH and Projected Land Development

The first step in evaluating the effect of CTS protection on land development is to identify the amount, type and location of land included in the proposed designation. The effect on private development only includes projects on land within proposed CH that can be feasibly developed during the timeframe being considered. For example, the analysis excludes non-developable areas such as bodies of water, parks, and other permanent open space.

730

This analysis relies on geographically-based land use data to identify areas designated for residential development, commercial development, and continued agricultural use. Two scenarios are developed to evaluate potential development in CH. The lower-bound scenario examines future development of all land currently designated or zoned for residential, commercial, or industrial land uses. The upper-bound scenario assumes that land currently designated for development and land adjacent to existing urbanized areas currently designated second-tier agricultural land is developed for residential, commercial, or industrial use.

[22] Past effects are not considered in this chapter as no historical CTS consultation addresses a development project and no habitat conservation plans covering CTS have been approved by the Service.

2. Identify Off-setting Compensation Associated with CTS Protection

The actual effects of CTS protection on applicable land development projects will ultimately depend on the type and intensity of project modifications likely to result from CTS conservation activities. For the most part, discussions with the Service are used to ascertain the type of CTS conservation activities that are likely to occur since no historical biological opinions (BOs) address private real estate development. EPS estimates rely on expected modifications to land use projects associated with CTS habitat conservation efforts, including on-site land set-asides (i.e., land not developed as a result of CTS protection), species surveying, biological monitoring, etc. Requirements associated with pre-existing CTS habitat-related regulations or land use restrictions, including Federal, state, local, or regional laws and agreements, though not a direct result of CHD are regarded, in this analysis, as "co-extensive" with CTS protection and are included in the estimated costs.

3. Evaluate Effects on Regional Real Estate Market and Associated Cost Incidence

The third step is to determine the significance of the CTS-related land use project modifications relative to regional real estate demand and supply dynamics, and the resulting regulatory cost incidence. The incidence or burden of the project modification and other compliance costs will ultimately depend on their scope and nature relative to the regional real estate markets.

The economic impacts of CTS conservation efforts are likely to extend beyond the regulated landowners and affect the real estate market, real estate consumers, and the regional economy if: (1) the amount of land set-aside is high relative to the total developable land in the region, and/or (2) other compliance costs are high relative to real estate development value and cover a significant proportion of developable land. In these cases, landowners and developers may pass on the costs to real estate consumers in the form of higher prices.

Conversely, if project modification costs are low and/or CTS protection only affects a small fraction of the total developable land supply in a region, then the economic effects are likely to be limited to the sub-set of individual landowners and/or projects. In this case, the regulated landowners will not be able to pass on their increased costs to consumers and their development projects will either relocate to other available sites or proceed with a reduced land value.

4. Estimate Economic Impacts

The fourth step involves taking the data and conclusions from steps one through three and estimating the potential economic costs associated with CTS conservation efforts. The approach to economic cost estimation is different depending on the cost incidence. If the project modification requirements do not affect the overall regional real estate market dynamics, cost impacts are borne by the regulated landowners and reduced land

values are estimated. The economic costs are estimated based on the loss in land value associated with required on-site set-asides and other project modifications incurred by individual landowners/developers.

If, however, the scale and intensity of the proposed designation are sufficient to affect regional real estate dynamics, regulatory requirements will primarily affect consumers through some mix of increased real estate prices and reduced real estate production. Producers or landowners will also be affected, although those with land outside of the designation area could gain from the reduced supply and corresponding price increase. The total economic effect is measured through the change in producer and consumer surplus, a measure of social welfare. The potential distribution of economic impacts is summarized in **Table 1**.

PROJECTED LAND DEVELOPMENT

Following the methodology outlined above, this section estimates the number of acres of projected development and the associated land set-aside for CTS within proposed CH. First, developable acreage is calculated by deducting the amount of land that is unlikely to be affected by the designation (i.e., land that will not experience new development) from the total number of acres within the proposed CH area. Development projections are then established based on proximity to existing urban areas and land use designations (e.g. zoning). CH acreage, developable acreage subject to land set-aside for CTS, and the projected land set-aside for CTS are presented in **Table 2** and further described below.

PRIMARY DATA AND TIME HORIZON

The estimated number of acres of real estate development potentially affected by CTS conservation efforts is based on the proposed CH boundary maps provided by the Service and Santa Barbara County land use data provided by Santa Barbara County Planning and Development. Specifically, Geographic Information Systems (GIS) maps of the proposed CH boundaries were overlaid with local land use data to determine the likelihood of future development.

EPS relies on data from the Santa Barbara County Association of Governments (SBCAG) and Santa Barbara County to evaluate future real estate development. SBCAG, the regional agency responsible for demographic projections in Santa Barbara County, does not publish land use or population projections on a census tract basis. SBCAG does generate population forecasts through 2030 at the county and city level. The SBCAG population forecast is based on existing land use policies and designations (e.g., zoning or urban boundaries) by jurisdiction. In addition, Santa Barbara County Planning and Development forecasts population through 2030 at a similar resolution. This forecast does not constrain growth based on land use policy and includes the potential for

Table 1
Distributional Impacts of CHD by Location and Affected Party
Economic Analysis of CHD for the California Tiger Salamander

Affected Party	Cost Distribution w/out Market-wide Impacts (1)		Cost Distribution with Market-wide Impacts (2)	
	Inside CH	Outside CH	Inside CH	Outside CH
Renters	No Impact	No Impact	Negative Impact	Negative Impact
Existing Home-owners / Landlords	No Impact	No Impact	Positive Impact	Positive Impact
Future Home-buyers / Landlords	No Impact	No Impact	Negative Impact	Negative Impact
Existing Land-owners	Negative Impact	No Impact	Negative Impact	Positive Impact
Future Land-owners / Developers	No Impact	No Impact	No Impact	No Impact

(1) Assumes that CH requirements affect only a very small component of total supply, resulting in no increase market land prices.
(2) Assumes that CH requirements affect a significant component of total supply, resulting in an increase market land prices.

Table 2
Summary of Future Development Set-Aside within Proposed CTS CH (2005 - 2030)
Economic Analysis of CHD for the California Tiger Salamander

CH Unit	Current Land Use (1)	Critical Habitat Acreage (2)	Developable Acres Subject to Land Set-Aside (3)		Land Set-Aside (4)	
			Lower-Bound	Upper-Bound	Lower-Bound	Upper-Bound
Unit 1 (5)	Residential Land Use	1,256	15	15	11	11
	Commercial Land Use	1,068	918	918	688	688
	Agriculture Land Use	2,026	0	770	0	578
	Other Land Use	3	0	0	0	0
Unit 2	Residential Land Use	0	0	0	0	0
	Commercial Land Use	0	0	0	0	0
	Agriculture Land Use	2,988	0	2,620	0	1,965
Unit 3	Residential Land Use	0	0	0	0	0
	Commercial Land Use	0	0	0	0	0
	Agriculture Land Use	2,183	0	0	0	0
Unit 4	Residential Land Use	4	3.3	3.3	2.5	2.5
	Commercial Land Use	0	0	0	0	0
	Agriculture Land Use	1,299	0	89	0	67
Unit 5	Residential Land Use	0	0	0	0	0
	Commercial Land Use	0	0	0	0	0
	Agriculture Land Use	2,347	0	0	0	0
	Other Land Use	14	0	0	0	0
Unit 6	Residential Land Use	0	0	0	0	0
	Commercial Land Use	0	0	0	0	0
	Agriculture Land Use	744	0	0	0	0
Total		**13,932**	**936**	**4,415**	**702**	**3,311**

(1) Land use data provided by Santa Barbara County Planning and Development.

(2) Critical habitat acreage calculated by Ellis GeoSpatial from GIS data provided by the Service.

(3) Calculation performed by Ellis GeoSpatial using land ownership data provided by the Service, FMMP data, and Santa Barbara County Planning and Development land use data. Note that some low-density land uses (e.g., rural residential) are assumed to not require land set-aside.

(4) Offsetting compensation is based on a ratio of 3:1.

(5) Note that Commercial Land Use includes "City [jurisdiction]" and "Educational Facility." Other Land Uses include land designated for recreation and utilities.

conversion of agricultural land to residential land. To be conservative (i.e., overestimate rather than underestimate costs), EPS relies more heavily on the forecast provided by the County as it is less constrained by current land use designations (see Appendix **Table B-1**).

DEVELOPMENT IN PROPOSED CRITICAL HABITAT

A GIS analysis was performed to identify developable acres and associated land use within proposed CH acres. Land areas identified as parks, permanent open space, open water, and/or other publicly owned areas are removed from the analysis of real estate development. This analysis assumes future development will not occur in these areas. Additionally, this analysis assumes that low-density development, that is, development equal to or less than one unit per acre, will not require offsetting compensation (i.e., land set-aside). This is because, in the opinion of EPS, development at this density or lower is likely to be able to avoid sensitive areas through project placement without a reduction in project size. Nonetheless, low-density development will require other project modifications, as discussed later in this section.

Two development scenarios that are generally consistent with SBCAG and Santa Barbara County Planning and Development population forecasts are evaluated. A lower-bound scenario examines development of all land currently designated for development by 2030. An upper-bound scenario evaluates development of all land currently designated for development and the conversion of second-tier agricultural lands in CH units one, two, and four (i.e., the units adjacent to existing urban centers) after 2015.[23] CH units three, five, and six are located in more rural areas not expected to face urban growth pressures. As shown in **Table 2**, 936 and 4,415 acres of proposed CH are estimated to be available for mid- to high-density development, and thus subject to set-aside for CTS conservation, under the lower- and upper-bound scenarios, respectively.

Second-tier agricultural lands are assumed to convert to residential use with 3.3 units per acre beginning in 2015. EPS assumes conversion of agricultural land to residential use with 3.3 units per acre as this is this is the upper-middle density observed in urban areas adjacent to proposed CTS CH. Conversion of agricultural land to residential use in 2015 allows 10 years for agricultural preservation contracts (i.e., Williamson Act) to be cancelled and current planned residential areas to be at least partially developed.

Appendix B provides data and calculations to justify the development scenarios evaluated in this analysis. Appendix **Table B-1** presents the Santa Barbara County Planning and Development population growth forecast. According to this forecast, the cities of Santa Maria and Orcutt will experience population growth of roughly 65,000

[23] The Santa Barbara County Comprehensive Plan, Agricultural Element, 1991 provides a priority ranking for the identification of agricultural value. It is assumed that the most valuable agricultural lands (i.e., lands designated Agricultural Commercial (AC)) are not converted to residential use.

individuals between 2000 and 2030. However, this level of population growth is not likely to be supported by the existing land use plan. Thus, at minimum, the acreage planned for development will be developed. Appendix **Table B-2** shows that if all residentially-zoned land and second-tier agricultural land in CTS CH is developed (upper-bound scenario) for residential use (without setting aside land for CTS), approximately 36,000 individuals could be housed in CTS CH. Given forecasted population growth of 65,000, upper-bound residential development in CH that provides housing for 36,000 individuals is reasonable.

See Appendix **Tables B-3** and **B-4** for more detailed information regarding land use, set-aside acreage, and set-aside cost in affected CH units. Appendix **Table B-5** presents land use definitions.

CTS LAND DEVELOPMENT ASSUMPTIONS

The economic impact of proposed CH on private sector land development will be directly linked to the type and level of off-setting compensation likely to be associated with CTS conservation efforts. This analysis relies on interviews with Service staff to estimate a likely future off-setting compensation standard of "3-to-1."[24] A 3-to-1 ratio means that three acres of suitable CTS habitat must be permanently set-aside from future development (through dedication of fee title or an appropriately restrictive conservation easement) for every acre of development that occurs within suitable CTS habitat. A lower- and upper-bound estimate of the total acres set-aside within proposed CH is provided in **Table 2**.

All future CTS habitat compensation is assumed to occur "on-site." This assumption is made because no approved habitat mitigation banks have been established that can provide credits to off-set CTS habitat impacts.[25] This assumption is more likely to overestimate than underestimate the actual cost of the designation, as off-site compensation land is typically of lower value than on-site. A 3-to-1 on-site compensation ratio implies that three-fourths of projected development in proposed CH would not occur as a result of CTS protection (i.e., three-fourths of the site are set-aside to compensate for the development of the remaining one-fourth).

[24] There is only one historical BO associated with private land development (the Food Bank BO described in Chapter 2). Due to the paucity of data, EPS has relied upon Service staff interviews to determine a reasonable estimate for this ratio. The 3-to-1 compensation ratio is reasonable given the range of 2-to-1 to 7-to-1 (preservation ratio) used for vernal pool species (See Economic Analysis of Critical Habitat Designation for Vernal Pool Species).

[25] In reality it may be possible to set-aside CTS habitat off-site through land purchase or conservation easement.

ECONOMIC IMPACT OF REDUCED PRIVATE DEVELOPMENT

This section uses the assumptions described above to estimate the present value of future development forgone due to CTS protection, and the regional economic effect on real estate markets and prices, if any, from reduced private development.

ECONOMIC VALUE OF REDUCED LAND DEVELOPMENT

As discussed above, this analysis assumes that future projects in CTS CH must comply with a 3-to-1 compensation ratio. As shown in **Table 2**, between 936 and 4,415 acres of projected land development are expected to require on-site land set-aside through 2030 in CH. In order to achieve 3-to-1 on-site set-aside, one fourth of the projected real estate development acreage will be developed and three-fourths of the projected growth acres, between 702 and 3,311 acres, will be set-aside for the CTS. The economic value of this lost real estate development is calculated based on market prices for raw residential, commercial, and industrial land, as further described below.

Real Estate Land Value Data and Assumptions

Residential and commercial market data for Santa Barbara County is used to estimate the cost, or lost value, of on-site set-aside acres. Summaries of raw market data and the calculation of the "residual land value" by real estate product type are presented in **Tables 3, 4** and **5**.

The residual land value is an estimate of the value of a raw, unimproved parcel with no infrastructure that is zoned for the development type in question (e.g., single family residential, office, etc.). The use of unimproved land value is appropriate because a developer seeking project entitlement will not invest money in infrastructure or other improvements on land designated as a habitat set-aside through the consultation or section 10 HCP process – using improved land prices would therefore overestimate the land value lost due to CTS protection. Cost associated with zoned land is more likely to overestimate than underestimate the cost of the designation than a calculation assuming no entitlements (i.e., zoning) are in place. **Table 3** describes estimated land values for the various densities of real estate development that are prescribed by the Santa Barbara County General Plan. **Table 4** presents estimated residual land values for retail, office, and industrial property.

This analysis assumes that the value of raw, unimproved land parcels less than three acres in size will be between 10 and 20 percent of finished product value, depending on the type of land use in question. In reality, raw land values can vary substantially depending on unique physical and locational factors as well as the market conditions that exist at the time of sale. However, given the paucity of reliable raw land sales data for small parcels, this analysis relies on a residual land value estimate calculated using

Table 3
Residential Residual Land Value Calculations
Economic Analysis of CHD for the California Tiger Salamander

Density (1)	1 Unit Per +20 acres	1 Unit Per 3 - 20 acres	1 Unit Per Acre	1.8 Units Per Acre	3.3 Units Per Acre	4.6 Units Per Acre
Median home price (1)	-	-	$367,000	$367,000	$367,000	$367,000
Gross land value (2)	-	-	$367,000	$660,600	$1,211,100	$1,688,200
Residual Value / Acre (3,4)	**$23,927**	**$34,246**	**$56,361**	**$101,449**	**$185,991**	**$259,260**

(1) Density is consistent with those prescribed by the Santa Barbara County General Plan.
(2) 2004 sales of new homes in Santa Barbara County as provided by Data Quick.
(3) Gross land value is calculated by multiplying the median home price by units per acre.
(4) Residual land value is the value of raw, unimproved land that is zoned for development, which is calculated to be 15% of gross land value (See **Table 5**).

Table 4
Commercial Residual Land Value Calculations

Lease Type	2004$
Office	
Annual Lease Rate (NNN) (1)	$12.75
Gross Revenue / Gross Ac. (2)	$156,967
Net Operating Income (3)	$152,258
Capitalized Value / Ac. (4)	$1,691,757
Residual Value / Acre (5)	**$253,763**
Retail	
Annual Lease Rate (NNN) (1)	$10.11
Gross Revenue / Gross Ac. (2)	$116,726
Net Operating Income (3)	$113,224
Capitalized Value / Ac. (4)	$1,258,045
Residual Value / Acre (5)	**$251,609**
Industrial (3)	
Annual Lease Rate (NNN) (1)	$7.55
Gross Revenue / Gross Ac. (2)	$66,375
Net Operating Income (3)	$53,100
Capitalized Value / Ac. (4)	$589,997
Residual Value / Acre (5)	**$59,000**
Office / Retail / Industrial Average	
Annual Lease Rate (NNN)	$10.14
Gross Revenue / Gross Ac.	$113,356
Net Operating Income	$106,194
Capitalized Value / Ac.	$1,179,933
Residual Value / Acre (5)	**$188,124**

(1) Lease rate data from actual listings from loopnet.com and Pacific Commercial Realty in Santa Maria, California. NNN lease rates are net of insurance, tax, and building improvement costs.
(2) Lease rate (/SqFt) converted to a per-acre basis and multiplied by (a) FAR, (b) occupancy rate, and (c) a 'net-to-gross' factor to account for parking, landscaping, and other vacant site uses.
(3) Operating expenses assumed to be 3.0% of gross revenue for office and retail, and 20% of gross revenue for industrial.
(4) Assumes 9% capitalization rate (i.e., net operating income divided by the sales price (or value)
(5) Residual land value is the value of raw, unimproved land that is zoned for development, which is assumed to be between 10 percent and 20 percent (depending on lease type) of gross land value. These percentages are based on calculations presented in **Table 5.**

Sources: loopnet.com; Pacific Commercial Realty; Economic & Planning Systems, Inc.

Table 5
Residual Land Value Calculation for a Single-Family Residential Product

Cash-Flow Item		Santa Barbara
Project Summary		
Median Price Per Unit (1)		$367,000
Median sq.ft. / Unit		1,654
Avg. FAR (Floor to Area Ratio)		0.50
Avg. # of Units / Gross Acre		10.5
Net to Gross Ratio (2)		20.0%
Units per Net Acre		13.2
Avg. Lot Size		3,308
Revenues		
Avg. Price Per Unit (1)		$367,000
Avg. Price per SF		$222
Total Revenues / Gross Acre		$3,866,648
Direct Costs (excluding land)		
Building costs / Sqft.		$96
Total		$1,672,704
In Tract Costs / lot		$15,000
Total		$158,037
Subtotal		1.11
		$2,032,123
Indirect Costs (excluding land)		
Planning & Entitlement	0.35% of direct costs	$7,112
Fees & Permits	3.0% of direct costs	$60,964
Architecture & Engineering	1.65% of direct costs	$33,530
Construction Management	2.0% of direct costs	$40,642
General & Administrative	3.0% of direct costs	$60,964
Financing & Charges	5.0% of direct costs	$101,606
Sales & Marketing	5.0% of unit value	$101,606
Contingency	3.0% of direct costs	$60,964
Subtotal		$467,388
Total Development Costs		$2,499,511
Per Unit		$237,239
Per Sqft.		$143
Developer Profit @	**25%** (3)	$773,330
Per Unit		$59,310
Residual Land Value		
Project Wide		$593,808
Per Unit		$56,361
Land Value/Unit Sales Price		15%

(1) The median home prices in Santa Barbara County in 2004 based on data from Data Quick.
(2) Based on data from RS Means.
(3) Based on standard real estate industry pre-tax return on investment criteria.

Source: Economic & Planning Systems, Inc.

observed market values for finished products (e.g. new home sales or industrial and commercial lease rates). Raw land values for larger (i.e., greater than three acre) parcels is based on market data obtained from Data Quick.

A residual land value calculation for a typical single-family residential product is provided in **Table 5**. The home price of $367,000 represents an average for single-family unit in Santa Barbara County. As shown, the residual land value for a typical residential product represents approximately 15 percent of the finished product price. The residual land value for office, retail, and industrial land generally exhibits a similar relationship to finished product value, with retail approximately five percentage points higher given the importance of site location and industrial approximately five percentage points lower.

Finally, this analysis assumes that raw land values will experience real appreciation through time, reflecting the relatively strong performance of California's real estate markets over the last ten to 20 years. Specifically, raw land values are assumed to appreciate at a rate of 4.25 percent per year in real terms (i.e., adjusted for inflation) over the next 26 years, or through 2030. This rate reflects an average of a 10-year and a 20-year trend in repeat sales or refinancing of the same residential properties in California, a method that controls for changes in housing quality, location, and size.[26] Based on this indexing method, the real value of housing grew at 2.0 percent per year between 1980 and 2003 and at 6.5 percent between 1994 and 2003. The average of these rates, or 4.25 percent, is judged appropriate for this analysis given the 26-year timeframe.

Future Land Value Losses

Future land value losses for private development projects through 2030 are estimated by calculating the lost residual land value of acres expected to be set aside due to CTS protection. Projected development (and acres set aside) is assumed to be evenly distributed through 2030; the economic impact associated with on-site set-aside is therefore calculated as the present value of future annual land value losses, assuming a 7 percent discount rate. The results of these calculations are summarized in **Table 6**. The present value of future land value losses are estimated to be between $94.7 million and $392.8 million in proposed CH. As is seen in **Table 6,** the large majority of real estate development impacts estimated under the lower-bound scenario are incurred in CH unit 1. Under the upper-bound scenario, the most substantial impacts are borne in CH unit 2, followed by units 1 and 4.

[26] Based on data from Office of Federal Housing Enterprise Oversight (OFHEO), "House Price Index for the First Quarter of 2004," June 1, 2004, available at http://www.ofheo.gov/HPI.asp. U.S. Department of Labor, Bureau of Labor Statistics, Bureau of Labor Statistics Data, as viewed on June 1, 2004 at www.bls.gov.

Table 6
Summary of Future Development Impacts with Proposed CTS CH (2005 - 2030)

CH Unit	Current Land Use (1)	Land Value / Acre (2)	Total Impact from Set-Aside (3) Lower-Bound	Upper-Bound
Unit 1	Residential Land Use	$185,991 - $259,260	$1,586,169	$1,586,169
	Commercial Land Use	$188,124 - $188,124	$92,847,029	$92,847,029
	Agriculture Land Use	$185,991 - $185,991	$0	$66,849,581
Unit 2	Residential Land Use	N/A	$0	$0
	Commercial Land Use	N/A	$0	$0
	Agriculture Land Use	$185,991 - $185,991	$0	$227,410,652
Unit 3	Residential Land Use	N/A	$0	$0
	Commercial Land Use	N/A	$0	$0
	Agriculture Land Use	N/A	$0	$0
Unit 4	Residential Land Use	$101,449 - $185,991	$217,647	$217,647
	Commercial Land Use	N/A	$0	$0
	Agriculture Land Use	$185,991 - $185,991	$0	$3,925,942
Unit 5	Residential Land Use	N/A	$0	$0
	Commercial Land Use	N/A	$0	$0
	Agriculture Land Use	N/A	$0	$0
Unit 6	Residential Land Use	N/A	$0	$0
	Commercial Land Use	N/A	$0	$0
	Agriculture Land Use	N/A	$0	$0
Total			**$94,650,845**	**$392,837,020**

(1) Land use data provided by Santa Barbara County Department of Planning and Development.

(2) Land values vary by density of development. See **Tables 3** and **4** for further explanation of raw land value calculations. Note that land value per acre presented for agricultural land assumes conversion to residential land use.

(3) Total impact is calculated in 2004 dollars for the time period 2005 - 2030. Estimated annual impacts are discounted at 7 percent and presented in present value terms.

REGIONAL REAL ESTATE EFFECTS

As described above, a reduction in the supply of developable land may potentially affect regional real estate markets and prices. If the regional real estate market is affected, landowners may pass on their CTS conservation-related costs in the form of higher prices to consumers, reducing consumer surplus. To determine the significance of CTS-related land set-aside on regional real estate markets, this analysis compares the potential reduction in developable land to market-wide demand and supply conditions. A summary of this comparison for the lower-and upper-bound scenario is provided in **Table 7**.

For the lower-bound scenario, foregone development of housing units is compared to forecasted demand for housing units through 2030. Under this scenario, forecasted demand does not consider the conversion of agricultural land to residential land. For Santa Maria / Orcutt, new units demanded from 2005 to 2030 is calculated by subtracting the predicted housing shortfall (without land use conversion) from an estimate of housing units demanded (without land use constraints) in 2030.[27] For Santa Barbara County, demand for housing units in 2030 is estimated from the *SBCAG Regional Growth Forecast*. This forecast considers current land use policies. The results of these comparisons are presented in **Table 7**. As shown, the estimated habitat set-aside in CH represents less than one percent of future growth through 2030.

For the upper-bound scenario, foregone development (in acres) is compared with the total supply of developable land, less Agricultural Commercial (AC) and other land uses (e.g., cemeteries and mountainous areas) which are unlikely to convert for development, in Santa Maria / Orcutt and Santa Barbara County. As described previously, developable acreage is equal to total acreage minus public acreage, water acreage, and developed acreage. This estimate does not consider physical barriers to development or local/County ordinances that may prevent development. The results of these comparisons are also presented in **Table 7**. As shown, the estimated habitat set-aside in CH represents approximately 6 percent of developable acreage in Santa Maria / Orcutt and 1 percent in Santa Barbara County.

The above estimate assumes that development in areas unaffected by CTS protection does not increase in density. In practice, densification and revitalization of under-utilized "in-fill" sites can continue to provide significant development opportunities in land constrained markets. Increased density provides additional housing supply which offsets the effect of CTS-related set-aside.

[27] Santa Barbara County 2030 Land and Population, The Potential Effects of Population Growth on Urban and Rural Lands, Santa Barbara County Planning and Development, November 2000.

Table 7
Regional Significance of Projected Land Set-Aside 2005 - 2030

Location	Estimated Development Potential 2005 - 2030		Estimate of Foregone Development (1)		% of Development Foregone
Lower-Bound Estimate *(housing units) [2]*					
Santa Maria / Orcutt (3)	5,756	housing units	39	housing units	0.7%
Santa Barbara County (4)	30,357	housing units	45	housing units	0.1%
Upper-Bound Estimate *(acres) [5]*					
Santa Maria Valley CCD (6)	54,288	acres	3,242	acres	6.0%
Santa Barbara County	292,484	acres	3,311	acres	1.1%

(1) Foregone development is equivalent to conservation set-aside. Acres set aside for the CTS are presented in **Table C-3.** Housing units associated with set-aside acreage are calculated based on the density of the current land use designation as defined by the Santa Barbara County General Plan. Housing units are presented here to avoid additional assumptions and loss of precision.

(2) Total development under the lower-bound scenario is approximated using forecasted development of housing units without conversion of agricultural land to residential land.

(3) Development potential 2005 to 2030 is calculated from the population forecast and predicted housing shortfall presented in *Santa Barbara County 2030 Land and Population, The Potential Effects of Population Growth on Urban and Rural Lands* , Santa Barbara County Planning and Development, November 2000. Population growth 2005 - 2030 is divided by 3.1 persons per household to estimate housing units, then reduced by the predicted housing shortfall attributable to insufficient land zoned for residential development.

(4) Development potential 2005 to 2030 is calculated from the population forecast presented in the Santa Barbara County Association of Governments *Forecast 2000* . This forecast considers the effects of existing county land use policies (e.g., zoning and urban boundaries) on population growth. Population growth 2005 - 2030 is divided by 2.8 persons per household to estimate housing units.

(5) Under the upper-bound scenario, second-tier agricultural land is developed. Total development under the upper-bound scenario is approximated by calculating developable acres, then excluding the Agricultural Commercial (AC) and other land uses which are unlikely to convert for development. Developable acreage is calculated by subtracting water acreage and developed acreage from private acreage. The calculation is based on land ownership data provided by the Service and FMMP data. Developable acres are then further reduced by the number of developable AC acres, acreage that has been designated mountainous, and other land use designations incompatible with real estate development (e.g., cemeteries) based on land use data from Santa Barbara County.

(6) The Santa Maria Valley CCD (Census County Division) contains the Santa Maria Urban Area, City of Orcutt and surrounding lands including CH Units 1 and 2.

Because roughly one percent of real estate supply in Santa Barbara County is likely to be set aside for the CTS, offsetting compensation measures are not expected to have a significant impact on the dynamics of the regional real estate market. Hence, housing prices in the county are not expected to be affected, and regulated landowners will bear the cost associated with CTS protection. Though foregone development in the Santa Maria Valley CCD is 6 percent under the upper-bound scenario, EPS believes that the relevant real estate market spans all of Santa Barbara County. Some projects may be distributed to other locations, while others may proceed with higher mitigation costs and lower land values, but no affect on market real estate prices is anticipated.

As described above, the total amount of land projected to be set aside due to CTS protection does not represent a significant proportion of the total land supply. No regional price increases are therefore expected, and thus the cost burden of the proposed rulemaking is expected to fall entirely on the landowner in the form of reduced raw land prices for parcels affected by proposed CH.

OTHER CTS COMPLIANCE REQUIREMENTS

This section evaluates the economic impact of implementing CTS conservation measures other than land set-aside, such as biological surveys, monitoring, and exclusionary fencing, as well as private and public costs associated with section 7 consultations and HCPs. Unlike land set-aside which is expected to occur only when mid- and high-density development is undertaken, "other" project modifications are expected to be undertaken for all development.

"Other" Project Modification Costs

The historical BOs concerning the CTS describe a range of conservation measures associated with CTS protection, including biological monitoring, exclusionary fencing, and minimization of construction activities near known CTS habitat. As shown in **Table 8**, this analysis estimates the cost of implementing these "other" project modifications by examining the cost to perform one CTS survey, to hire a biological consultant, and to install exclusionary fencing around 50 percent of the impacted development area. The cost to implement "other" project modifications is approximately $1,000 per acre.

As shown in **Table 9**, this analysis estimates that between 528 and 1,398 acres are expected to be impacted by development through 2030 in proposed CH. This differs from the acreage in CH subject to land set-aside because all development (not just mid- to high- density development) is expected to undertake "other" project modifications. The estimated cost of implementing "other" project modifications for real estate development projects is between $951,000 and $2.5 million for CH in present value terms.

Table 8
Project Modification Costs Other than Land Set-Aside

Project Modification Category	Specific Conservation Measures per Project (1)	Unit Cost	Total Cost/Project	Total Cost / Acre
Biological Surveys	1 survey	$2,800 / survey	$2,800	$156
Biological Monitoring	Three months of monitoring at half-time	0.125 FTE; $70,000 salary	$8,750	$486
Exclusionary Fencing	Fencing around 50% of development area	$5 / linear ft.	$6,261	$348
Total Cost			$17,811	**$990**

(1) Based on anticipated conservation measures derived from the CTS consultation history (Note that no development BOs exist). Total cost per acre estimates are based on an average project size of 18 acres and an impacted development area of 4.5 acres.

Table 9
Summary of Other Project Modification Costs

CH Unit	Current Land Use	Developable Acres Subject to Other Project Modifications (1)	Acres Subject to Other Project Modifications		Project Modification Costs (2,3)	
			Lower-Bound (4)	Upper-Bound	Lower-Bound (4)	Upper-Bound
Unit 1	Residential Land Use	1,192	298	298	$536,559	$536,559
	Commercial Land Use (5)	918	229	229	$412,997	$412,997
	Agriculture Land Use (6)	770	0	193	$0	$346,609
Unit 2	Residential Land Use	0	0	0	$0	$0
	Commercial Land Use	0	0	0	$0	$0
	Agriculture Land Use (6)	2,620	0	655	$0	$1,179,254
Unit 4	Residential Land Use	3.3	1	1	$1,501	$1,501
	Commercial Land Use	0	0	0	$0	$0
	Agriculture Land Use (6)	89	0	22	$0	$39,911
Total		**5,592**	**528**	**1,398**	**$951,058**	**$2,516,832**

(1) The analysis assumes that all projected real estate development projects undergo project modifications.
(2) Project modification costs calculated in **Table 8** assume that project modifications will be requested for 25 percent of the total project acreage. Note that "other" project modification costs per acre are applied to the entire project site, including the impacted area and acres set-aside.
(3) Future costs are calculated for the time period 2005 - 2030. Estimated annual impacts are discounted at 7 percent and presented in present value terms.
(4) Note that under the lower-bound scenario agricultural land is not converted for development and thus not impacted.
(5) Note that Commercial Land Use includes "City" and "Educational Facility."
(6) Excludes the AC land use designation. AC lands are assumed to remain in agriculture.

Administrative Consultation Costs

In addition to project modification costs, future Habitat Conservation Plans (HCPs) and section 7 consultations (if any) will result in administrative costs based on the time spent preparing for, participating in, and completing the plan or consultation. This analysis assumes that the number of future formal projects is equivalent to the estimated number of future projects subject to the California Environmental Quality Act (CEQA) process. CEQA is discussed in detail in **Chapter 6** of this report. EPS expects between 90 and 426 real estate development projects by 2030.[28] This analysis assumes that each project will require an HCP or section 7 consultation. Administrative costs are based on a formal section 7 consultation with the Service involving an action agency and one "third party" (i.e., the applicant).[29] The total present value of administrative cost of section 7 consultations and HCPs 2005 through 2030 are estimated to be between $1.7 million and $7.9 million. Administrative costs are borne by the Service, the action agency, and the project proponent.

SUMMARY OF ESTIMATED ECONOMIC IMPACTS

The total cost, in present value terms, of future (2005 through 2030) CTS conservation efforts and administrative tasks associated with real estate development is estimated to be between $96.1 million and $396.4 million in proposed CH. The present value of future land value losses are estimated to be between $93.4 million and $385.9.4 million in proposed CH. The future costs of implementing "other" project modifications are estimated to be between $951,000 and $2.5 million, in present value terms. The total present value of administrative costs 2005 through 2030 are estimated to be between $1.7 million and $7.9 million.

[28] This estimated future development significantly exceeds the historical rate. The lack of historical consultations may be due to the fact that little was known about the spatial extent of CTS occupancy, and relatively few projects were therefore required to consult for CTS protection. The lack of consultations could also be due to the lack of a Federal nexus in most cases. Because the Proposed Rule states that all proposed CH is assumed to be occupied by the species, this analysis considers this to represent new information regarding the spatial extent of CTS distribution. It is therefore assumed that all future development in proposed CH would be subject to either formal consultation pursuant to section 7 when the project has a Federal nexus, or would require an incidental take permit pursuant to section 10 (preparing an HCP) for the CTS when no Federal nexus exists. This assumption is more likely to overestimate than underestimate the actual cost of the proposed CHD.

[29] HCP administrative costs are assumed to be equivalent to formal section 7 consultation administrative costs.

CAVEATS TO ECONOMIC COST EVALUATION

The economic cost impacts estimated in this Chapter are based on a series of assumptions that may overestimate the actual cost of CTS conservation efforts. The following factors should be taken under consideration when evaluating the costs described above:

1. **Census-Tract-level development forecasts not available.** The analysis described above relies on regional/County population growth estimates to justify lower- and upper-bound development scenarios. Under the lower-bound scenario, all residential/commercial land in CH adjacent to existing development is developed. Under the upper-bound scenario, all residential/commercial/2nd tier agricultural land in CH adjacent to existing development is developed. EPS believes that this is a reasonable approach because CH adjacent to existing development is likely to be located in the path of future development. To whatever degree future development avoids CH for reasons other than the CTS, the economic effect of the designation has been overstated.

2. **Lost development opportunities not offset by gains in other areas**. This analysis calculates the value of land development losses due to CTS protection as a "net loss" to society. In reality, given the strength of the real estate market and the amount of developable land outside the proposed designation, it is likely that development opportunities forgone due to CTS protection may in fact be offset by increased density and/or development elsewhere. While individual landowners within the proposed designation would still experience real economic losses, the "net" economic impact to society would be reduced as landowners outside the proposed designation experience off-setting economic gains.

3. **Economic losses not off-set by economic gains**. This analysis endeavors to capture the net economic impact imposed on regulated entities and the regional economy resulting from CTS conservation efforts. To the extent possible, the estimated net economic impact should account for any offsetting benefits that might accrue to the regulated community due to their CTS habitat preservation activities. For example, in certain cases real estate development that effectively incorporates CTS habitat set-aside on-site might realize a value premium typically associated with additional open space. Any such premium will offset land preservation costs borne by landowners/developers. Unfortunately, reliable data revealing the premium that the market places on nearby open space in Southern California is not readily available. As such, this analysis does not quantify any offsetting benefits received by the regulated community due to on-site habitat preservation. It is important to note that the value premium associated with habitat preservation may be limited given that the recreational uses associated with habitat preserves are generally restricted.

4. ECONOMIC IMPACT ON OTHER PRIVATE ACTIVITIES

The other private sector activities identified in this analysis that have been or may be affected by CTS species or habitat conservation measures include cattle grazing, vineyards and crops (irrigated and dry cultivation). This chapter evaluates the potential economic impact of CTS conservation on these activities.

CATTLE GRAZING IMPACTS

There are no historical consultations regarding grazing, but Service staff have indicated that grazing activities will be likely to continue where they currently exist in CH as long as no changes are contemplated, such as a large increase in livestock density or the construction of improvements such as irrigation equipment or fencing.[30] Of particular concern to the Service are measures used by ranchers to control the populations of small burrowing mammals through poison and other measures.[31] Small mammal burrows provide upland habitat for CTS between breeding seasons, and a reduction in their availability can adversely affect CTS through a reduction in CTS habitat.

In general, however, the Service has indicated that existing grazing uses in their current states are generally compatible with CTS, allowing for both the creation of habitat and the migration of CTS through areas currently being grazed. Although local ranchers have indicated a reluctance to create new stock ponds for fear of creating breeding sites for CTS with concomitant restrictions on the use of their land, existing grazing sites within CTS CH should be able to continue with no modifications or restrictions. Consequently, no past or future economic impacts to this industry are attributed to CTS conservation measures. Comments from individual ranchers suggest that CTS designation does place potential restrictions on their ability to use stock pond water and to expand grazing operations, but EPS has been unable to quantify these impacts.

CROPS

Dry and irrigated cultivation occurs throughout the identified Units, with the possible exception of Unit 5. The primary threat to CTS from cultivated crops stems from the plowing of fields between seasons, which destroys any mammal burrows that can serve as CTS habitat and can also kill CTS living in those burrows. The BOs issued by the Service to date suggest that existing cultivated land is not considered CTS habitat because of the regular plowing of fields that occurs, but is passable for CTS migrating to habitat further afield. The analysis assumes that none of the land in the CH will be converted to crops over the long term, and therefore no economic impact is calculated.

[30] Katie Drexhage conversation and email, May 10, 2004.

[31] The small mammal burrows are hazardous to livestock, which can step in the small holes and break limbs.

In the course of the analysis EPS has been told of a number of parcels that are currently fallow or used as irrigated pasture even though they are zoned for cultivated land, such as row crops. Such land is potentially habitat for CTS, and therefore would face greater restrictions in the case of development or use for row crops. The data available does not provide information regarding current use, however, so EPS has been unable to include it in the analysis.

VINEYARDS

The CTS consultation history indicates that vineyards do not constitute good quality habitat for the species. Nonetheless, vineyards do not create a barrier to CTS migration. Thus, similar to cultivated land, the primary effect of CTS conservation efforts on viniculture will come from restrictions on development where existing good quality habitat (e.g., grazing land) is converted to vineyards. Where vineyards are to be created within CH, the impact on CTS depends upon the existing use. Cultivated land converted to vineyards has no net effect on habitat, because cultivated land is itself not CTS habitat. When grazing land is converted to vineyards, on the other hand, a net loss of CTS habitat occurs and the conversion would likely be subject to section 7 or 10 of the Act. As with the development of land detailed in **Chapter 3**, this analysis assumes that grazing land converted to vineyards will be subject to a 3:1 compensation ratio.

EPS calculated the past rate of growth of vineyard land in Santa Barbara County, along with the amount of land under vineyard cultivation as a proportion of the total agricultural land in the County. EPS applied this percentage to the agricultural land in the CH to estimate the amount of land that would be converted to vineyards during the study period. Based on this calculation EPS estimates that, as an upper bound, 23 percent of agricultural land in the CH will be converted to vineyards by 2030. **Table 10** details the calculated vineyard acreage for each unit based on this allocation.

Where the existing use is cultivated land, the net cost will consist of the costs associated with the consultation with the Service. Where the existing use is grazing land, and therefore involves the destruction of CTS habitat, the net cost will consist of the section 7 consultation cost where a federal nexus exists and where no federal nexus exists and the conversion would result in take of CTS, section 10 permit application costs along with the loss of a portion of the land dedicated for habitat. The owners of this grazing land will be subject to a reduction in value stemming from the loss of land that would otherwise be converted to vineyard use. For the purposes of this analysis, EPS assumes a habitat mitigation ratio of 3:1.

In conducting the data analysis, EPS determined that none of the land zoned for grazing within CH Units 1, 2, 5 and 6 will be available for vineyards because it will be developed as residential or commercial property within the timeframe under consideration. Therefore the only costs associated with the conversion of land to vineyards will be potential consultation costs associated with conversion of cultivated land to vineyards.

Table 10
Vineyard Conversion Acreage

CH Unit	Available Acreage (1)	Acreage Converted to Vineyard
One	1,195	275
Two	368	85
Three	See Table 12	
Four	See Table 12	
Five	1,201	276
Six	744	171
Total		807

(1) Agricultural acreage not otherwise developed by 2030.

Table 11 details the calculation of consultation costs that will be incurred by vineyard conversions. As shown on **Table 11,** the costs for consultations on vineyard conversions will total $64,779 through 2030.

As in the case of row crops, however, EPS was not able to obtain data regarding existing uses of land, most notably in the case of agricultural land left fallow or used as irrigated pasture. Land not currently under cultivation is potential habitat for CTS. Although there are no current BOs on this activity, the Service has indicated that in Unit Three a BO that deals with the conversion of land used for grazing to vineyards is imminent. In that case the project will likely include the dedication of land adjacent to a breeding pond to CTS habitat and the conversion of land further away to vineyard use. The Service has also indicated that a significant portion of Unit Four, currently used as irrigated pasture land, was purchased for vineyard conversion just before the designation of CTS and that the owner has indicated that an HCP will be prepared to allow for further development. The Service has not received any additional information regarding this project.

For the purposes of this analysis EPS assumes that the Service will require a mitigation ratio of 3:1 for the potential vineyard projects on Units Three and Four. The costs of these projects are detailed in **Table 12**, and total approximately $2.4 million for Unit Three and $3.0 million for Unit Four. The proximity of Units Three and Four to existing vineyards suggest the potential for further conversion, but no information on planned conversions is available.

Table 11
Vineyard Conversion Costs

CH Unit	Project Description	Date	Project Modification Cost	Consultation Cost	Total
Past Consultations					
Unit Six	Vineyard Conversion	2003	$260,000	$10,045	$270,045
Expected Future Consultations					
Vineyard Projects (1)	Vineyard Conversion	Various	$47,700	$17,079	$64,779

(1) Assumes one vineyard project each for Units One, Two, Five and Six, some time during the study period. Consultations are assumed to be informal and based on data supplied by IEc. Project modifications based on figures for road projects.

Table 12
Vineyard Conversion Migitation Costs, Units 3 and 4
CTS Draft Economic Analysis

CH Unit	Conversion Acreage	Set-Aside (1)	Land Use	Land Value Per Acre	Total Impact (2)
Three (3)	545	409	Pasture Vineyard	$8,155 $15,432	$2,440,305
Four (4)	1,213	910	Pasture Vineyard	$8,155 $15,432	$3,011,139
Total	1,758	1,319			$5,451,444

(1) Set-Aside calculated at a mitigation ratio of 3:1.
(2) Estimated annual impacts are discounted by 7 percent and presented in present value terms.
(3) Estimated at 25% of the total Unit acreage. Project assumed to occur within next five years.
(4) Equal to all land owned by Jackson Family Estates. Project assumed to occur within next 26 years.

Sources: County of Santa Barbara, Dataquick Information Systems

5. ECONOMIC IMPACT ON PUBLIC PROJECTS & ACTIVITIES

This chapter evaluates the potential historical and future economic impact of CTS protection on a range of public projects and activities. The analysis focuses primarily on future road and utility projects, as the consultation history suggests that these are likely to be the most significantly affected public activity. In addition, the analysis considers the potential impact of CTS protection on research activities.

IMPACT ON TRANSPORTATION PROJECTS

The CTS BO history includes only one BO regarding road construction, the repair of a bridge on Black Road in Unit One. The project did not cause the destruction of any habitat, and required only CTS take avoidance and minimization efforts during construction. As shown on **Table 13**, the total cost imposed on this project by CTS was $26,390. Based on an analysis of transportation infrastructure plans for the County, there are four transportation projects located within CTS CH, three projects in Unit One and one project in Unit Six. As shown on **Table 13**, the total cost of projects in Unit One is calculated to be $143,353, and the total cost of the project in Unit Six is calculated to be $40,949. This analysis assumes that, as in the formal BO already completed, there will be no remediation of habitat required, only CTS take minimization and avoidance measures.

IMPACT ON OTHER PUBLIC INFRASTRUCTURE

The CTS BO history includes three Formal BOs on utilities and other infrastructure projects. These consultations include a sewer line construction project, the repair of a culvert and the expansion of a wastewater treatment facility. The BOs have not constrained the size or location of infrastructure projects and as such this analysis assumes that future project modifications related to CTS protection will not impair the service capacity of infrastructure projects. The only apparent impact of CTS on these projects was to increase construction costs through requirements to protect CTS, as detailed elsewhere in this report.

EPS has been able to obtain only a very rough estimate of $100,000 per project for the wastewater infrastructure work, and has not received an estimate for the costs incurred in the culvert repair. As shown on **Table 14**, EPS has split the $100,000 historical cost for each wastewater project between CTS and the Red-Legged Frog, and used a standardized figure to estimate the cost imposed on the culvert repair. EPS has applied

Table 13
Economic Impacts on Road Construction

Project Location	Project Description	Date	Project Modification Cost (1)	Consultation Cost (1)	Total Cost
Past Consultations					
Black Road, Santa Maria	Bridge Replacement	2002	$13,109	$13,281	$26,390
Expected Future Consultations (2)					
Route 1, Clark Ave to Junction 1/166, Santa Maria	Widen the 11-foot lanes. Widen non-standard shoulders to a four foot width.	2005	$24,503	$36,951	$61,454
Route 246, Lompoc to Buellton	Widen for additional lane, each direction east of Rte. 1 junction to Buellton city limit	2011	$16,327	$24,622	$40,949
Foster Road, between Route 135 and Blosser Rd., Santa Maria	Widen to four lanes and construct bike lanes	2011	$16,327	$24,622	$40,949
"E" Street, Santa Maria	Acquire ROW and construct 4-lane arterial, Union Valley Parkway to Betteravia	2011	$16,327	$24,622	$40,949
Future Cost Total			**$73,485**	**$110,817**	**$184,302**

(1) Historical project modification and consultation costs supplied by Jared Hart, Environmental Planner, Public Works, County of Santa Barbara, 5/5/04. Project modification costs are divided by two to account for costs attributable to the Red-Legged Frog. Future project modification costs are based on historical project modification costs (future costs are not decreased to account for additional species). Future consultation costs are based on data supplied by Industrial Economics, Inc. All costs are discounted at 7 percent and presented in present value terms.
(2) Expected future consultations are derived from *Santa Barbara County Association of Governments Regional Transportation Plan 2000 - 2020.* All future projects occurring in critical habitat are assumed to consult with the Service

Table 14
Economic Impacts on Utility Construction

Project Location	Project Description	Date	Project Modification Cost (1)	Consultation Cost (1)	Total Cost
Past Consultations					
Unit One	Wastewater Plant Upgrade	2002	$37,500	$12,500	$50,000
Unit One	Sewer Line Upgrade	2002	$37,500	$12,500	$50,000
Green Canyon	Culvert Repair	2003	$12,252	$12,412	$24,664
Total Past Consultations					$124,664
Expected Future Consultations (2)					
Various	Annual Project	Annual	$310,051	$467,562	$777,612

(1) Past consulation costs for wastewater projects provided by Laguna County Sanitation District, and divided between CTS and Red-Legged Frog. Future consultation costs are based on data supplied by Industrial Economics, Inc. All costs are discounted at 7 percent and presented in present value.
(2) Future consultations estimated at one per year during the study period, 26 in total. Divided between Units One and Two in proportion to acres projected for development.

a standard methodology to estimate future costs, detailed in **Table 14**. EPS has assumed one infrastructure project per year, the approximate rate of BOs related to infrastructure since the listing of CTS in 2000.

AIRPORT DISTRICT DEVELOPMENT

The Santa Maria Public Airport District is in the process of developing a research park and golf course on land within Unit Two, directly adjacent to the southern edge of the Airport. The project consists of approximately 2.2 million square feet of industrial and warehouse uses on 150 acres, and an 18-hole golf course. Although the project was originally conceived to provide approximately 4.5 million square feet of commercial space and a 27-hole golf course, the staff of the District have indicated that the reduction in size came about as a result of community opposition, rather than restrictions related to CTS.

EPS understands that the current mitigation plan for construction of the project provides that the airport district will dedicate approximately 339 acres of existing habitat, much of which could not be developed in any case due to FAA restrictions, convert approximately 14 acres to habitat, and dedicate 140 acres of existing agricultural land to CTS habitat, taking the land out of production. The major net cost to the District from these measures is the loss of rental income from the agricultural land to be taken out of production, which totals $41,000 annually for the phases of the project within the scope of this analysis.[32] At a discount rate of seven percent, this annual amount is equal to $509,000 in present dollars. In addition, the Airport District has indicated that they spent approximately $400,000 on planning and legal fees to modify the project to comply with Service requirements.

EXOTIC SPECIES REMOVAL

There are no BOs or consultations regarding exotic species removal. Avoidance and minimization measures include surveys and monitoring, minimal precautionary measures, prohibition of herbicides on native vegetation, and timing constraints. EPS does not quantify CTS-related cost impacts associated with this activity.

RESEARCH

No BOs or consultations have been issued for research activities. EPS does not quantify CTS-related cost impacts associated with this activity.

[32] Phase 3 of the project, which is not likely to occur for several decades, triggers the dedication of an additional 80 acres, with rents totaling $56,000 annually.

RECREATION

No recreational areas have been identified within the CTS CH, and therefore no impacts on recreational activities are anticipated.

6. ADDITIONAL ECONOMIC IMPACTS

The previous chapters provide estimates of impacts from CTS conservation activities on a variety of private and public projects. In this chapter, other types of economic impacts are evaluated, including impacts to certain projects from the California Environmental Quality Act (CEQA), impacts related to project delays, and impacts to project applicants and landowners that are generated by regulatory uncertainty and stigma effects.

REGULATORY EFFECTS TRIGGERED BY CHD

This section discusses whether the designation of critical habitat provides new information that triggers additional regulatory effects. It explains how CEQA functions to protect species and habitat and to what degree any CEQA-imposed costs may be linked to CHD.[33] Additionally, the potential for CHD to inform County planning requirements is explored.

CEQA-RELATED IMPACTS

CEQA is a California State statute that requires state and local agencies (known here as "lead agencies") to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Projects carried out by Federal agencies are not subject to CEQA provisions. CEQA regulations require a lead agency to initially presume that a project will result in a potentially significant adverse environmental impact and to prepare an Environmental Impact Report (EIR) if the project may produce certain types of impacts,[34] including when

> *[t]he project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory.*[35]

[33] Please note that to the extent that CEQA provides co-extensive protections to the CTS and its habitat, these project modification costs are accounted for in the previous chapters. This section focuses on whether critical habitat triggers additional administrative burden under CEQA for landowners or project proponents.

[34] Categories of "environmental impact" evaluated in the context of CEQA review and/or EIR preparation typically include geological, air quality, water quality, noise, light/glare, land use planning, population, housing, transportation/circulation, public service, utility system, energy, human health, aesthetic, recreational, and cultural resource impacts.

[35] California Natural Resources Code §15065(a).

State law instructs the lead agency (typically a county or city community development or planning department in the case of land development projects) to examine impacts from a very broad perspective, taking into account the value of animal and plant habitats to be modified by the project. The lead agency must determine which, if any, project impacts are potentially significant and, for any such impacts identified, whether feasible mitigation measures or feasible alternatives will reduce the impacts to a level less than significant. It is within the power of a lead agency to approve a project with significant negative impacts if the agency concludes that those impacts are acceptable in light of economic, social, or other benefits generated by the project.

Projects without a mandatory finding of significance and that the lead agency concludes will not result in significant impacts may be approved by a lead agency in what is known as a "negative declaration." Alternative project scenarios are not examined for projects approved by negative declaration, and the expenditures are typically much lower than what would be required to complete an EIR.

Alternatively, an applicant may request that a lead agency issue a permit or some other discretionary approval for a project that is redesigned to either avoid or mitigate all significant impacts to the environment. Typically, the project is then approved by the lead agency through what is known as a "mitigated negative declaration." Similar to a negative declaration, the expenditures required for the approval of a project with a mitigated negative declaration are on average much lower than costs associated with a project that requires preparation of an EIR.

Finally, minor projects that fit one of eleven classifications as defined by the CEQA statutes may be found to have no significant effect on the environment. Some of these classifications are listed here.

- Certain alterations of existing facilities
- Replacement or reconstruction of existing structures
- Smaller development projects such as restaurants smaller than 2500 square feet
- Certain projects involving landscaping or temporary trenching
- Lot line adjustments
- Experimental management or research
- Habitat restoration
- Certain safety inspections and mortgage lending
- Signs and small parking lots

Many of these types of minor projects are eligible for a "categorical exemption" from the provisions of CEQA altogether, and compliance costs are usually limited to completion of the paperwork required by the lead agency.

EFFECTS ON LARGE PROJECTS THROUGH CEQA

Most large real estate development projects that are responsible for housing and industrial and commercial construction in California counties (i.e., "large projects") are required under CEQA to submit an EIR for public review and consider project alternatives. A lower level of CEQA review, perhaps taking the route of a negative declaration, for example, is highly unlikely for such large-scale development projects. Preparation of an EIR for any such development project will include formal consideration of all potential environmental impacts, including biological and/or habitat-related impacts, irrespective of the presence of designated CH.

This analysis evaluates whether CHD results in additional requirements and/or costs during the preparation of an EIR. In the process of doing this analysis and several other CHD analyses throughout the State of California, a series of consultants who specialize in EIRs were asked whether the presence of critical habitat on the project site added to the cost of preparing the EIR and moving the EIR through public hearings as part of the project's entitlement process. The consensus view in the consultant community is that CHD adds no measurable CEQA-related cost for the project applicant above that already required to comply with the CEQA statutes.[36]

First, where listed species are present on the project site, the EIR's biological component will be required to discuss and evaluate habitat impacts, as well as present project alternatives. This requirement is unchanged after Federal designation of critical habitat.

Second, where species are not present on the project site, CEQA directs the EIR to inventory the important natural resources on the project site and characterize project impacts to important habitat types. CEQA makes no reference to critical habitat, and methods used by EIR biologists are unlikely to change if critical habitat is designated. In fact, according to state officials, state agency oversight of the quality and completeness of a project EIR concentrates wholly on the biological values of habitat in proximity to the project and on potential project impacts to that habitat, and not on the property's status as federally designated critical habitat.

In conclusion, this analysis finds that CHD for the CTS is unlikely to increase EIR costs above those required under CEQA for any large projects in the CHD.

INDIRECT EFFECTS ON SMALLER PROJECTS THROUGH CEQA

The question of whether CHD can change the public review process for a smaller project that requires a discretionary action by lead agencies in California does not appear to have been answered either by the implementation of CEQA or by litigation over the

[36]Personal communication with senior staff from RBF Consulting (San Jose, California), EDAW (Sacramento, California) and HT Harvey & Associates (Watsonville, California), February 24–28, 2003.

allowable extent of CEQA's exemption language. It is likely that the next 10 to 20 years will establish a regulatory record or the judicial review required for an adequate assessment of CHD's actual effects.

In the absence of empirical evidence, this analysis assumes that State law will disqualify certain types of projects from claiming a categorical exemption if the project is located in CH, and that these projects would be required to prepare an EIR. Second, this analysis assumes that all projects that would have submitted either a mitigated negative declaration or a negative declaration under CEQA prior to CHD will also need to complete an EIR due to the potential impact to essential CTS habitat. Due to the uncertainty regarding how municipalities and the County will use CHD, this approach yields cost estimates associated with a sensible worst case scenario.

The Service and County of Santa Barbara released a map describing the range of the CTS to the public in July 2000. The range of the CTS was developed based on positive and negative results from biological surveying, elevation, topographic features, and soils. The range of the CTS is estimated to be 186,840 acres in Santa Barbara County (more than 13 times the size of the current proposed CHD).[37] Because the maps provide only a rough approximation of the range of the CTS, it is unlikely that project proponents or government agencies rely heavily on the maps. According to Santa Barbara County Planning and Development, the range of the CTS is used by the planning staff as a preliminary guide.[38] Therefore, this analysis assumes that CHD will provide new information to project proponents and government agencies, resulting in additional CEQA requirements. Specifically, additional CEQA requirements may arise due to the increased burden of proof and probability of litigation associated with actions proposed within CHD.

This analysis estimates the number of future projects that would have sought either a categorical exemption or a negative declaration in the absence of proposed CH by consulting the historical rate of CEQA document submittals in Santa Barbara County. Between 2000 (the year of CTS listing) and 2003, 75 CEQA notices of exemption and 59 CEQA negative declarations were submitted in Santa Barbara County annually. These historical annual rates are used to project future document submittals in proposed CH based on forecasted population growth. The resulting projections are shown in **Table 15**.

The economic impact of the proposed rulemaking is estimated as the difference between the cost to perform an EIR and the cost either to (a) perform a negative declaration or (b) apply for and receive a categorical exemption. Based on interviews conducted with biological consultants who frequently develop CEQA documents, this analysis assumes the costs to apply for and receive a Categorical Exemption, prepare a negative

[37] Range of the CTS acreage provided by Mark Bright, Chief Mapping Technician, Planning and Development, County of Santa Barbara, July 21, 2004.

[38] Personal communication with Melissa Mooney, Planning and Development, County of Santa Barbara, July 21, 2004.

Table 15
Future CEQA Requirements

CH Unit (1)	Annual CEQA Documents in CH (2005 - 2030) NOE (2)	ND (3)	Cost of CEQA Documents in CH (4) NOE	ND	Total
Lower-Bound Estimate (5)					
1	1.7	1.4	$1,001,636	$681,665	$1,683,300
2	0.0	0.0	$0	$0	$0
4	0.0	0.0	$3,583	$2,438	$6,021
Total	**1.7**	**1.4**	**$1,005,219**	**$684,103**	**$1,689,322**
Upper-Bound Estimate (6)					
1	3.1	2.5	$1,828,734	$1,244,548	$3,073,282
2	4.8	3.8	$2,814,002	$1,915,073	$4,729,075
4	0.2	0.1	$98,821	$67,253	$166,074
Total	**8.1**	**6.4**	**$4,741,557**	**$3,226,873**	**$7,968,430**

(1) Estimated annual CEQA documents for Santa Barbara County are allocated to CH unit based on the estimated percentage of Santa Barbara County development growth 2005 - 2030 contained within each CH unit.
(2) Notice of Exemption.
(3) Negative Declaration.
(4) Annual costs are incurred from 2005 to 2030, discounted at 7 percent, and presented in present value terms.
(5) The lower-bound estimate forecasts future CEQA documentation based on the *SBCAG Regional Growth Forecast*. This forecast considers constraints associated with current land use policies.
(6) The upper-bound estimate forecasts future CEQA documentation based on the Santa Barbara County Planning and Development population forecast. This forecast assumes land use policies are adjusted to allow for additional population growth.

declaration, and prepare an EIR are approximately $500, $7,500, and $50,000, respectively, for small projects.[39] Small projects are considered applicable in this case since these projects would not have required an EIR in the absence of CTS CHD. As shown in **Table 15**, the present value of indirect CEQA costs following CHD is estimated to be between $1.7 million and $8.0 million.

REGULATORY DELAY IMPACTS

Land use projects in California are generally required to undertake a variety of planning and entitlement related activities prior to actual approval. While CTS conservation activities are likely to increase the administrative costs of most land use projects, they will not necessarily delay their implementation. Given a sufficient knowledge of the regulatory environment, the various administrative activities associated with the Act can generally be coordinated with other regulatory processes (such as tentative map approvals or action on project EIRs) and do not necessarily increase the time to obtain approvals.

CTS conservation activities can, however, cause time delays to some private land development projects due to requirements not to conduct certain construction activities during specific periods of the year (i.e., during the CTS breeding season). In addition, projects pursued by applicants unfamiliar with the requirements of the Act may be delayed until compliance requirements become better understood. Consequently, this analysis estimates the potential impact of project delays that may occur in the short-term, or one to two years after finalization of the CTS CHD. This analysis focuses on mid- and high-density land development activities, the area most likely to experience delays.

The following assumptions were made to estimate the economic cost of time delay associated with the CHD breeding season requirements and other factors:[40]

- Projects expected to begin more than 12 months after CHD are not expected to face any additional delay, as land development activities can be planned around the breeding season.
- CTS protection will delay all private land development projects slated to begin development in the 12 months following designation.
- The average delay to projects slated to occur in the next 12 months is 6 months (the maximum breeding season duration).

[39] Personal communication with senior staff from RBF Consulting (San Jose, California), EDAW (Sacramento, California) and HT Harvey & Associates (Watsonville, California), February 24–28, 2003.

[40] The CTS breeding season typically occupies the winter rainy season, which can vary from two to four months. Given advance warning, most private development projects can time their habitat-disturbing land development activities to avoid the breeding period. In any case, the rainy season is typically a period of minimal construction activity.

- The land value loss associated with this delay can be estimated by applying the appropriate discount rate – a measure of the time value of money. As discussed in **Chapter 3**, the private land developer annual discount rate is about 7 percent. This discount rate is halved to calculate the time loss associated with a six-month delay.

Time delay results in a present value loss of approximately $23,000 in land value. **Table 16** presents results of the economic cost of time delay by unit. As shown, about 234 acres of mid- and high-density land development is expected to experience delay costs (note that agricultural land converting to residential land does not experience delay cost as this conversion is assumed to occur more than 12 months after CHD). Of this, one-twenty sixth (1/26), or 9 acres, is expected to be developed in the first 12 months after designation and are expected to be delayed by an average of 6 months.

UNCERTAINTY EFFECTS

Developers face uncertainty over the project modifications that will ultimately be required due to CTS conservation activities. For example, the outcome of the HCP or section 7 consultation process can be uncertain: the Service evaluates each HCP or proposed action on a case-by-case basis and recommends project modifications based on species-specific and site-specific considerations. While some differences in recommended project modifications are clearly linked to habitat quality and other determinable factors, an element of uncertainty remains.

The costs estimated in **Chapter 3** considered the economic costs associated with an average expected habitat compensation ratio and suite of project modifications. While these estimates represent the average economic costs, the outcome for individual landowners/ developers will fluctuate above and below these expected levels.

The economic effects of uncertainty depend on the degree to which developers – and more specifically, their financiers – are risk-averse. At any given time, a developer may be choosing between a portfolio of potential development opportunities, some within and others outside of the proposed CHD. It is possible that the regulatory uncertainty associated with the section 7 and section 10 may temporarily render projects within CHD less desirable than alternative development opportunities. Consequently, the developer may delay construction within CHD until market support strengthens and/or negotiate a reduced purchase price with the property owner to compensate for the additional risk.

It is important to note that the increased uncertainty associated with the level of CTS conservation activities represents an economic distributional effect rather than an economic welfare effect. This is because uncertainty per se does not alter regional real estate demand and supply dynamics; the total effect of CTS conservation activities does not change. Some projects will experience a lower set-aside and other projects a higher set-aside but individual market transactions will determine the actual cost incidence. In

Table 16
Delay Costs Associated with Development: Lower- and Upper-Bound Scenarios

CH Unit	Location	Current Land Use (1)	Developable Acres	CH Acres Developed (2)	Land Value ($/Acre) (3)	Acres Delayed (4)	Cost of Delay (5,6)
1	'W. Santa Maria/Orcutt'	'A-II'	765.2	-	-	-	-
1	'W. Santa Maria/Orcutt'	'A-II-320'	4.9	-	-	-	-
1	'W. Santa Maria/Orcutt'	'AC'	1,195.0	-	-	-	-
1	'W. Santa Maria/Orcutt'	'CITY'	908.8	227.2	$188,124	8.7	$22,603
1	'W. Santa Maria/Orcutt'	'EDUCATIONAL FACILITY'	2.6	0.6	$188,124	0.0	$64
1	'W. Santa Maria/Orcutt'	'GENERAL COMMERCIAL'	0.3	0.1	$188,124	0.0	$9
1	'W. Santa Maria/Orcutt'	'GENERAL COMMERCIAL/OFFICE AND PROFESSIONAL/PLANNED DEVELOPMENT-3.3'	2.1	0.5	$188,124	0.0	$52
1	'W. Santa Maria/Orcutt'	'HIGHWAY COMMERCIAL'	0.3	0.1	$188,124	0.0	$6
1	'W. Santa Maria/Orcutt'	'NEIGHBORHOOD COMMERCIAL'	3.6	0.9	$188,124	0.0	$90
1	'W. Santa Maria/Orcutt'	'RECREATION/OPEN SPACE'	0.0	-		-	-
1	'W. Santa Maria/Orcutt'	'RES-0.33'	1.1	-		-	-
1	'W. Santa Maria/Orcutt'	'RES-1.0'	9.7	-		-	-
1	'W. Santa Maria/Orcutt'	'RES-3.3'	12.9	3.2	$185,991	0.1	$316
1	'W. Santa Maria/Orcutt'	'RES-4.6'	2.2	0.5	$259,260	0.0	$74
1	'W. Santa Maria/Orcutt'	'RR-20'	1,166.4	-	-	-	-
Unit 1 Total			**4,075**	233		9	$23,213
2	'E. Santa Maria'	'A'	1,017	-	-	-	-
2	'E. Santa Maria'	'A-II'	371	-	-	-	-
2	'E. Santa Maria'	'A-II-100'	184	-	-	-	-
2	'E. Santa Maria'	'AC'	367	-	-	-	-
2	'E. Santa Maria'	'OPEN AND GRAZING'	1,048	-	-	-	-
Unit 2 Total			**2,988**	0		0	$0
4	'E. Los Alamos'	'A-II'	89	-	-	-	-
4	'E. Los Alamos'	'AC'	1,211	-	-	-	-
4	'E. Los Alamos'	'RES-1.8'	3	0.6	$101,449	0.0	$34
4	'E. Los Alamos'	'RES-3.3'	1	0.2	$185,991	0.0	$19
Unit 4 Total			**1,303**	1		0.03	$54
Total			**8,365**	**234**		**9**	**$23,267**

(1) Land use categories are described in additional detail in **Table B-5**.
(2) Offsetting compensation is based on a 3:1 ratio.
(2) Land values are described in additional detail in **Tables 3** and **4**.
(3) Offsetting compensation costs are discounted at 7 percent and presented in present value terms.
(4) The amount of development projected to occur in Year 1, assuming even distribution through 2030.
(5) Delay is assumed to last 6 months. Delay costs arise from the opportunity cost of money (calculated using a rate of 7 percent).
(6) Delay costs are assumed to occur in the current year. Because land use conversion from agriculture to development occurs in the future, no delay costs are experienced on land currently designated for agriculture. Thus, delay costs under the lower- and upper-bound scenarios are equal.

areas where market demand is strong, developers may be more likely to incorporate the added risk into their project cash-flow, paying property-owners an amount close to the expected residual value of their land. In these cases, property-owners "pass-on" the risk associated with added uncertainty. In weaker markets, property-owners may have to reduce the price of their land and/or delay its sale.

Given the wide range of potential market outcomes, the actual cost incidence due to uncertainty is difficult to predict. While some property owners will undoubtedly suffer, their loses are likely to be offset by gains to developers. The converse may also be true; if property-owners can successfully pass-on the added risk, some developers may incur higher CTS related conservation costs than reflected in their land purchase price. Overall, the gains are likely to equal the losses. Consequently, this analysis does not estimate economic cost impacts due to uncertainty.

STIGMA EFFECTS

Separate from regulatory uncertainty costs for owners of land in essential habitat are stigma-related effects. Stigma effects are a form of uncertainty that relate less to observed variation in project modifications and more to perceived fluctuations when there is limited information on actual outcomes. Stigma effects last for a limited time period as increasing levels of information erode the perceived fluctuations, replacing them with a more accurate assessment of the actual uncertainty. They also tend to last only as long as the "fastest learners" remain unclear about the actual uncertainty associated with CHD.

In a situation where some market actors are clear about the effects and are able to appropriately discount the land values, while others incorporate a stigma and discount the land further, arbitrage is likely to occur—the "fastest learners" will buy the land from others, gradually increasing the land price until it reaches the value of land associated with actual uncertainty discounting only.

Overall, the stigma effect primarily results in a land value distribution to the "fastest learners" from others, all on the same site. This analysis recognizes that a small fraction of the 13,920 acres of land affected by proposed designation is subject to a short-term stigma effect and that, because of clear regulatory requirements for a listed species such as the CTS, the magnitude of the actual stigma costs is small. These stigma costs are the sum of the transaction costs associated with arbitrage and the investment made in understanding the project modification requirements. Consequently, no estimate of the effect is provided.

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APPENDIX A:

ECONOMIC IMPACTS TO SMALL ENTITIES AND ENERGY

ECONOMIC IMPACT TO SMALL ENTITIES AND ENERGY

This Appendix considers the extent to which the analytic results presented in the Draft Economic Analysis reflect future impacts to small entities or energy markets. An analysis of the effect of CTS habitat conservation activities on small entities is conducted pursuant to the Regulatory Flexibility Act (RFA), as amended by the SBREFA in 1996. The energy analysis is required by Executive Order Number 13211.

SBREFA ANALYSIS

Under SBREFA, whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comments a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).[41] However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.[42] SBREFA amended the RFA to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have significant economic impact on a substantial number of small entities.

To assist in this process, the following represents a screening-level analysis of the potential effects of future CTS habitat conservation activities on small entities. The analysis is based on the estimated impact of CTS habitat conservation activities, as provided in the body of this report.

IDENTIFICATION OF ACTIVITIES THAT MAY INVOLVE SMALL ENTITIES

The Draft Economic Analysis identifies land use activities that are impacted by CTS conservation activities. A wide variety of industry sectors and entities may experience economic costs due to CTS conservation activities. Only a subset of the total impact will be borne by small entities. This section considers the extent to which the results of the report (See **Table ES-2** and **Table ES-3**) reflect impacts to small entities. A brief description of the impact of CTS conservation on the various sectors considered in the report is provided below.

[41] 5 U.S.C. 601 et. seq.

[42] Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for "significant impact" and a threshold for a "substantial number of small entities." See 5 U.S.C. 605 (b).

Real Estate Development

As discussed in **Chapter 3**, CTS conservation activities affecting future real estate development projects will be borne by the current landowner, regardless of whether that landowner actually undertakes the development project himself or herself.[43] In many instances, existing landowners may not be businesses. Rather, they may be individuals holding the land as an investment. Technically, individuals who are not businesses are not included in a screening analysis under the RFA. However, in certain cases (e.g., land that is likely to be developed in the next few years), existing landowners may be development companies who are impacted by the conservation activities. To be conservative, this analysis assumes that all of the landowners impacted by future CTS conservation activities are developers. This assumption is likely to overstate the actual impacts to small land development firms. Impacts to landowners include lost land value, project modification costs, CEQA costs, delay costs and administrative costs.

Agriculture and Cattle Grazing

As discussed in **Chapter 4**, CTS conservation activities are expected to result in economic costs borne by viticulture firms, which are all small businesses in Santa Barbara County. Costs are anticipated to arise from land conservation and administrative burden.

Public Projects

As described in the Draft Economic Analysis, a number of public entities may be affected by the proposed CTS designation. SBREFA defines a "small governmental jurisdiction" as "governments of counties with a population of less than fifty thousand."[44] There are no jurisdictions meeting this criterion within the proposed CHD. The proposed designation is located entirely within the unincorporated areas of Santa Barbara County and does not intersect any cities (the County's population is approximately 406, 200). Although portions of the designation are also adjacent to the City of Santa Maria, the City does not qualify as a small entity since it has a population of about 80,200.

CTS conservation activities related to road and infrastructure projects are not likely to result in costs to small entities. Impacts associated with transportation projects, utilities, infrastructure and airport projects are expected to be borne by large public entities. For example, most road projects involve Caltrans, which does not qualify as a small entity. All historical consultations on infrastructure projects involved Santa Barbara County, which does not qualify as a small entity. Furthermore, the Santa Maria Public Airport District serves the City of Santa Maria and other communities and does not qualify as a small entity since its service population is greater than 50,000.

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[43] As discussed in Chapter 3, a developer will consider the regulatory restrictions associated with a parcel of land before buying the parcel. Therefore, any costs associated with CTS conservation activities will be reflected in the price paid for the parcel. Thus, the cost of CTS conservation measures is ultimately borne by current landowners in the form or reduced land values.

[44] U.S.C § 601.

DESCRIPTION OF AFFECTED SMALL ENTITIES

Based on the information provided above, the real estate development sector and viticulture sector may contain small entities potentially affected by CTS conservation activities. A more detailed description of the effect of CTS conservation on small real estate development and viticulture firms is provided below.

The SBA's size standards for private sector firms are based on the North American Industry Classification System (NAICS). NAICS Code number 237210 has been identified as most appropriate for analysis of real estate development impacts. According to the SBA size criterion, firms in this sector must have less than $6 million per year in gross revenues to be considered a small business.

The NAICS Code number 237210 comprises businesses primarily engaged in servicing land and subdividing real property into lots, for subsequent sale to builders. Servicing of land may include excavation work for the installation of roads and utility lines. The extent of work may vary from project to project. Land subdivision precedes building activity and the subsequent building is often residential, but may also be commercial tracts and industrial parks. These businesses may do all the work themselves or subcontract the work to others. Businesses that perform only the legal subdivision of land are not included in this industry.

The NAICS Code 312130 has been identified as most appropriate for analysis of CTS impacts on viticulture. The 312130 code covers wineries and includes grape farming and the making of wine, brandy, champagne, and other similar alcoholic beverages. Viticulture firms are considered small when fewer than 500 individuals are employed by the firm.

Information on the number and total sales for the sectors described above is presented in **Table A-1**, based on data from Dun and Bradstreet and Risk Management Association (RMA).[45] As shown, small firms make up the majority of the firms in both sectors. However, the share of total sales in the real estate development sector attributable to small businesses is approximately 54 percent. Thus, although the small business constitutes a relatively large share of the total firms in the sector, their share of total sales is significantly lower. In the viticulture sector, small firms account for all sales.

[45]This information was gathered in a Dialog search of File 516, Dun and Bradstreet, "Dun's Market Identifiers."

Table A-1
Estimated Number of Small Firms and Revenues in Santa Barbara County
Economic Impact Analysis of the CaliforniaTiger Salamander Critical Habitat Designation

Item		Land Development [1] (NAICS 237210)	Viticulture [2] (NAICS 312130)
Small Businesses			
Average Annual Sales (Small Businesses)	*(in millions)*	$1.6	$24.2
Number of Small Businesses		115	31
Annual Sales Subtotal	*(in millions)*	**$187.4**	**$751.3**
Large Businesses			
Average Annual Sales (Large Businesses)	*(in millions)*	$40.3	n/a
Number of Large Businesses		4	0
Annual Sales Subtotal	*(in millions)*	**$161.4**	**$0.0**
Total			
Average Annual Sales	*(in millions)*	$2.9	$24.2
Number of Businesses		119	31
Number of Small Businesses as a % of total		97%	100%
Total Annual Sales	*(in millions)*	**$348.7**	**$751.3**
Small Business Sales as a % of total		**54%**	**100%**

Source: Dunn & Bradstreet, Jan. 2004, Small Business Administration (SBA), and the Risk Management Association (RMA), RS Means: Square Foot Costs (2004)

Notes:
[1] In order to compute the average annual income for small and large businesses in the land development industry, 2003 annual sales data from the Risk Management Association (RMA) were used. RMA reports the total net annual sales figures for all businesses in the land development industry by income categories. Average annual sales for small and large businesses are calculated using total sales by firms below and above the $6 million threshold. Total sales for small and large firms are divided by the total number of firms within each category. Average annual income is then inflated by a location coefficient factor from RS Means: Square Foot Costs (2004) to adjust for regional cost differences.
[2] The Small Business Administration (SBA) considers viticulture businesses with 500 employees or less as small. According to County business patterns, 100 percent of the viticulture businesses in Santa Barbara County employ less than 500 people. In order to compute the average annual income for a small business in this industry, 2003 annual sales data from the Risk Management Association (RMA) were used. The total net annual sales figure, reported by RMA, for all businesses in this industry was divided by the total number of businesses reported. The average annual income was then inflated by a from RS Means: Square Foot Costs (2004) to adjust for regional cost differences.

ESTIMATED EFFECTS ON SMALL ENTITIES

Land Development and Viticulture

The potential impact of CTS conservation activities on the small land development businesses in Santa Barbara County is estimated in **Tables A-2** and **A-3**. The projected impact to small viticulture businesses is presented in **Tables A-4** and **A-5**. For the land development sector, the total small business impact is estimated to be between $4.4 and $18.4 per year in Santa Barbara County (**Table A-2**). The viticulture sector is expected to experience an impact of about $467,000 per year (**Table A-4**).

The number of small land developers affected annually ranges from 3 percent of the County total in the lower bound scenario to 14 percent in the upper bound scenario, as calculated in **Table A-3**. For those small land developers that are impacted, the average cost per project is roughly 8 to 9 percent of the typical annual sales for a small firm in the land subdivision sector.

The number of small viticulture firms affected annually is approximately one percent of the firms in the sector, as calculated in **Table A-5**. For those small viticulture firms that are impacted, the average cost per project is only about one percent of the typical annual sales for a small firm in the sector.

Caveats to Impact on Land Development Sector

The estimated impacts on small land developers in Santa Barbara provided above contain a number of important assumptions that are likely to overstate the actual economic impact to small businesses in this sector. These include:

- **All property-owners in critical habitat are developers**: As noted above, the analysis assumes that all affected property owners within the proposed CTS designation are also land developers. In reality, a large share of the affected property owners will sell their land to developers at a price that incorporates the expected cost of critical habit related conservation activities. To the extent this occurs, property owners rather than small land developers will incur the costs estimated herein.
- **All future projects conducted by separate small businesses**: The economic impact is based on an estimate of the number of future projects expected to occur within the proposed designation and assumes that each project is conducted by a separate land developer. To the extent that some of these projects are conducted by the same developer, the total number of small businesses affected will be smaller than the amount estimated. However, since a small business is not likely to be conducting two projects within critical habitat simultaneously, the annual impact per project will be the same.

- **The number of affected small business projects is proportional to the number of small developers**: As estimated in **Table A-1** and **Table A-3**, small businesses account for about 97 percent of the total firms in the County but only 54 percent of total sales in the sector. However, the analysis assumes that small businesses will account for 97 percent of future projects. To the extent that larger land developers account for a disproportionate share of total sector projects, as they do for total sector sales, the actual number of small businesses impacted may be smaller than the amount estimated in **Table A-3**.
- **Santa Barbara County is relevant geographic area for measuring impacts**: The analysis assumes that Santa Barbara County contains the universe of small businesses likely to be affected by the proposed designation. In reality, some of the affected businesses may be located in adjacent counties such as San Luis Obispo. If the appropriate pool of affected businesses extends beyond Santa Barbara County, then the proportion of small businesses affected in relation to the total number of small businesses in the sector will be smaller than the amount estimated in **Table A-3**.

POTENTIAL IMPACTS TO THE ENERGY INDUSTRY

Pursuant to Executive order Number 13211, Federal agencies are required to submit a summary of the potential effects of regulatory actions on the supply, distribution and use of energy. Two criteria are relevant to this analysis: 1) reductions in electricity production in excess of 1 billion kilowatt-hours per year or in excess of 500 megawatts of installed capacity and 2) increases in the cost of energy production in excess of one percent. This proposed critical habitat designation is expected to have minimal impacts on the energy industry.

Table A-2
Impact to Small Business in the Land Development Sector within Proposed Critical Habitat
Economic Impact Analysis of Tiger Salamander Critical Habitat Designation

Impact Category	Formula	Land Development	
		Lower Bound	Upper Bound
Total Impact			
Land Value Loss		$94,650,845	$392,837,020
Other Project Modifications		$951,058	$2,516,832
New Projects Subject to CEQA		$1,689,322	7,968,430
Project Delay		$23,267	$23,267
Administrative Costs		$1,684,190	$7,944,223
Total	a	**$98,998,681**	**$411,289,772**
Annual Impact (1)	b	$8,371,430	$34,779,086
Percent of Sector Revenues Attributable To Small Business (See Table A-1)	c	54%	54%
Impacts to Small Business			
Total	d = a * c	$53,190,553	$220,980,018
Annual	e = b * c	$4,497,848	$18,686,297

(1) Small business costs are annualized over 26 years based on a 7% discount rate.

Table A-3
Number of Small Land Development Firms Affected and Size of Impact per Firm in Proposed Critical Habitat
Economic Impact Analysis of Tiger Salamander Critical Habitat Designation

Impact Category	Formula (1)	Land Development	
		Lower Bound	Upper Bound
Total # of Affected Projects (2)	a	90	426
Avg. Annual # of Affected Projects	b = a / 26 years	3.5	16.4
% of Projects Conducted By Small Businesses (see Table A-1)	c	96.6%	96.6%
Total # Of Affected Small Business Projects (3)	d = a * c	87	412
Avg. Annual # Of Affected Small Business Projects	e = d / 26 years	3.3	15.8
Number of Small Businesses In Sector (see Table A-1)	f	115	115
Avg. Annual Affected Small Businesses as a % of Sector Total (4)	g = e / f	3%	14%
Total Impact to Small Businesses In Sector (see Table A-2)	h	$53,190,553	$220,980,018
Small Business Impact / Project	i = h / d	$611,563	$536,775
Annualized Small Business Impact / Project (5)	j	$149,154	$130,915
Avg. Annual Sales per Small Business (see Table A-1)	k	$1,629,218	$1,629,218
Per Project Impact as a Percent of Total Sales	= j / k	9.15%	8.04%

(1) Actual calculations may include rounding.
(2) Based on annual CEQA documents in County as reported by the Ceqanet database (accessed on-line as www.ceqanet.ca.gov/querform.asp?)
(3) Based on proportion of land development businesses that are small. This is conservative since large businesses are likely to conduct more projects than small businesses.
(4) Assumes each project is conducted by a separate business. In reality the same business might conduct several projects.
(5) Small business costs are annualized over 5 years based on a 7% discount rate to account for the manner and duration that these costs are likely to be absorbed.

Table A-4
Impact to Small Business in the Viticulture Sector within Proposed Critical Habitat
Economic Impact Analysis of Tiger Salamander Critical Habitat Designation

Impact Category	Formula	Viticulture
Total Impact		
Project Modifications and Administrative Costs		$5,516,223
Total	a	**$5,516,223**
Annual Impact (1)	b	$466,458
Percent of Sector Revenues Attributable To Small Business (See Table A-1)	c	100%
Impacts to Small Business		
Total	d = a * c	$5,516,223
Annual	e = b * c	$466,458

(1) Small business costs are annualized over 26 years based on a 7% discount rate.

Table A-5
Number of Small Viticulture Firms Affected and Size of Impact per Firm in Proposed Critical Habitat
Economic Impact Analysis of Tiger Salamander Critical Habitat Designation

Impact Category	Formula (1)	Viticulture
Total # of Affected Projects (2)	a	6
Avg. Annual # of Affected Projects	b = a / 26 years	0.2
% of Projects Conducted By Small Businesses (see Table A-1)	c	100%
Total # Of Affected Small Business Projects	d = a * c	6.0
Avg. Annual # Of Affected Small Business Projects	e = d / 26 years	0.2
Number of Small Businesses In Sector (see Table A-1)	f	31
Avg. Annual Affected Small Businesses as a % of Sector Total (3)	g = e / f	1%
Total Impact to Small Businesses In Sector (see Table A-4)	h	$5,516,223
Small Business Impact / Project	i = h / d	$919,371
Annualized Small Business Impact / Project (4)	j	$224,226
Avg. Annual Sales per Small Business (see Table A-1)	k	$24,236,484
Per Project Impact as a Percent of Total Sales	= j / k	0.93%

(1) Actual calculations may include rounding.
(2) Assumes one project per unit as described in Chapter 4.
(3) Assumes each project is conducted by a separate business. In reality the same business might conduct several projects.
(4) Small business costs are annualized over 5 years based on a 7% discount rate to account for the manner and duration that these costs are likely to be absorbed.

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APPENDIX B:

DETAILED DEVELOPMENT SCENARIOS

Table B-1
Estimated Population and Housing Demand for Santa Barbara County and Relevant Cities

Location	Population		Growth 2000 - 2030	Housing Units at Buildout	Year the Population would Reach Buildout Capacity	Total Housing Units Needed in 2030	Housing Units at Buildout and Units Needed in 2030
	Year 2000	Year 2030					
City of Santa Maria	72,900	123,591	50,691	30,130	2016	38,662	8,532
City of Orcutt	35,595	49,667	14,072	14,223	2027	17,306	3,083
Subtotal	108,495	173,258	64,763	44,353			
Santa Barbara County Total	414,200	576,448	162,248	-	-	-	-

Source: Santa Barbara County 2030 Land and Population, The Potential Effects of Population Growth on Urban and Rural Lands, Santa Barbara County Planning and Development, November 2000.

Table B-2
Upper-Bound Estimate Future Population in Proposed CH without Set-Aside

CH Unit	Current Land Use (1)	Land Use Conversion (2)	CH Acres Developed (2)	Residential Density (Units/Acre) [3]	Residential Units	Population (4)
1	'A-II'	'RES-3.3'	765.2	3.3	2525	7,828
1	'A-II-320'	'RES-3.3'	4.9	3.3	16	50
1	'AC'	None	-	-	-	-
1	'CITY'	None	908.8	-	-	-
1	'EDUCATIONAL FACILITY'	None	2.6	-	-	-
1	'GENERAL COMMERCIAL'	None	0.3	-	-	-
1	'GENERAL COMMERCIAL/OFFICE AND PROFESSIONAL/PLANNED DEVELOPMENT-3.3'	None	2.1	-	-	-
1	'HIGHWAY COMMERCIAL'	None	0.3	-	-	-
1	'NEIGHBORHOOD COMMERCIAL'	None	3.6	-	-	-
1	'RECREATION/OPEN SPACE'	None	-	-	-	-
1	'RES-0.33'	None	1.1	0.33	0	1
1	'RES-1.0'	None	9.7	1	10	30
1	'RES-3.3'	None	12.9	3.3	42	131
1	'RES-4.6'	None	2.2	4.6	10	31
1	'RR-20'	None	1,166.4	0.05	58	181
Unit 1 Total			**2,880**		**2,662**	**8,252**
2	'A'	'RES-3.3'	1,017.2	3.3	3357	10,406
2	'A-II'	'RES-3.3'	370.8	3.3	1224	3,793
2	'A-II-100'	'RES-3.3'	184.4	3.3	609	1,887
2	'AC'	None	-	-	-	-
2	'OPEN AND GRAZING'	'RES-3.3'	1,047.7	3.3	3457	10,718
Unit 2 Total			**2,620**		**8,647**	**26,804**
4	'A-II'	'RES-3.3'	88.7	3.3	293	907
4	'AC'	None	-	-	-	-
4	'RES-1.8'	None	2.6	1.8	5	14
4	'RES-3.3'	None	0.8	3.3	3	8
Unit 4 Total			**92**		**300**	**929**
Total			**5,592**		**11,608**	**35,986**

(1) Land use categories are described in additional detail in **Table B-5**.
(2) To estimate upper bound impacts, EPS assumes that all agricultural lands except for those with the 'AC' land use designation will be converted for development between 2015 and 2030.
(3) Residential density is based on land use prescribed by the Santa Barbara County General Plan.
(4) Persons per unit is assumed to be 3.1. This is based on the weighted average persons per unit for the City of Santa Maria and Orcutt, calculated from Santa Barbara County 2030 Land and

Table B-3
Future Development Impacts, Lower Bound Scenario: Agricultural Land is not converted for development (2005 - 2030)

CH Unit	Current Land Use (1)	Developable Acres Subject to Offsetting Compensation	Offsetting Compensation (Acres) (2)	Offsetting Compensation ($/Acre) (3)	Offsetting Compensation (2004$)	Offsetting Compensation (2004$, 7%) (4)
1	'A-II'	-	-	-	-	-
1	'A-II-320'	-	-	-	-	-
1	'AC'	-	-	-	-	-
1	'CITY'	908.8	681.6	$188,124	$128,220,998	$91,950,500
1	'EDUCATIONAL FACILITY'	2.6	1.9	$188,124	$361,228	$259,046
1	'GENERAL COMMERCIAL'	0.3	0.3	$188,124	$48,330	$34,659
1	'GENERAL COMMERCIAL/OFFICE AND PROFESSIONAL/PLANNED DEVELOPMENT-3.3'	2.1	1.6	$188,124	$293,272	$210,313
1	'HIGHWAY COMMERCIAL'	0.3	0.2	$188,124	$35,954	$25,784
1	'NEIGHBORHOOD COMMERCIAL'	3.6	2.7	$188,124	$511,386	$366,728
1	'RECREATION/OPEN SPACE'	-	-	-	-	-
1	'RES-0.33'	-	-	-	-	-
1	'RES-1.0'	-	-	-	-	-
1	'RES-3.3'	12.9	9.6	$185,991	$1,793,088	$1,285,868
1	'RES-4.6'	2.2	1.6	$259,260	$418,756	$300,300
1	'RR-20'	-	-	-	-	-
Unit 1 Total		**933**	**699**		**$131,683,012**	**$94,433,198**
2	'A'	-	-	-	-	-
2	'A-II'	-	-	-	-	-
2	'A-II-100'	-	-	-	-	-
2	'AC'	-	-	-	-	-
2	'OPEN AND GRAZING'	-	-	-	-	-
Unit 2 Total		**0.0**	**0**		**$0**	**$0**
4	'A-II'	-	-	-	-	-
4	'AC'	-	-	-	-	-
4	'RES-1.8'	2.6	1.9	$101,449	$194,243	$139,296
4	'RES-3.3'	0.8	0.6	$185,991	$109,256	$78,350
Unit 4 Total		**3.3**	**3**		**$303,499**	**$217,647**
Total		**936**	**702**		**$131,986,511**	**$94,650,845**

(1) Land use categories are described in additional detail in **Table B-5**.

(2) Offsetting compensation is based on a 3:1 ratio.

(2) Land values are described in additional detail in **Tables 3** and **4**.

(3) Offsetting compensation costs are discounted at 7 percent and presented in present value terms.

Table B-4
Future Development Impacts Upper-Bound Scenario: Agricultural Land is converted for development (2005 - 2030)

CH Unit	Current Land Use (1)	Land Use Conversion (2)	Developable Acres Subject to Offsetting Compensation	Offsetting Compensation (Acres) (3)	Offsetting Compensation (2004$/Acre) (4)	Offsetting Compensation (2004$)	Total Offsetting Compensation (2004$, 7%) (5)
1	'A-II'	'RES-3.3'	765.2	574	$185,991	$106,739,067	$66,413,193
1	'A-II-320'	'RES-3.3'	4.9	4	$185,991	$687,730	$436,388
1	'AC'	None	-	-	-		-
1	'CITY'	None	908.8	682	$188,124	$128,220,998	$91,950,500
1	'EDUCATIONAL FACILITY'	None	2.6	2	$188,124	$361,228	$259,046
1	'GENERAL COMMERCIAL'	None	0.3	0	$188,124	$48,330	$34,659
1	'GENERAL COMMERCIAL/OFFICE AND PROFESSIONAL/PLANNED DEVELOPMENT-3.3'	None	2.1	2	$188,124	$293,272	$210,313
1	'HIGHWAY COMMERCIAL'	None	0.3	0	$188,124	$35,954	$25,784
1	'NEIGHBORHOOD COMMERCIAL'	None	3.6	3	$188,124	$511,386	$366,728
1	'RECREATION/OPEN SPACE'	None	-	-	-		-
1	'RES-0.33'	None	-	-	-		-
1	'RES-1.0'	None	-	-	-		-
1	'RES-3.3'	None	12.9	10	$185,991	$1,793,088	$1,285,868
1	'RES-4.6'	None	2.2	2	$259,260	$418,756	$300,300
1	'RR-20'	None	-	-	-		-
Unit 1 Total			**1,702.8**	**1,277**		**239,109,810**	**161,282,779**
2	'A'	'RES-3.3'	1,017.2	763	$185,991	$141,897,534	$88,288,839
2	'A-II'	'RES-3.3'	370.8	278	$185,991	$51,724,528	$32,183,072
2	'A-II-100'	'RES-3.3'	184.4	138	$185,991	$25,723,800	$16,005,384
2	'AC'	None	-	-	-		-
2	'OPEN AND GRAZING'	'RES-3.3'	1,047.7	786	$185,991	$146,147,794	$90,933,357
Unit 2 Total			**2,620.2**	**1,965**		**365,493,657**	**227,410,652**
4	'A-II'	'RES-3.3'	88.7	67	$185,991	$12,369,893	$3,925,942
4	'AC'	None	-	-	-		-
4	'RES-1.8'	None	2.6	2	$101,449	$194,243	$139,296
4	'RES-3.3'	None	0.8	1	$185,991	$109,256	$78,350
Unit 4 Total			**92**	**69**		**$12,673,392**	**$4,143,589**
Total			**4,415**	**3,311**		**617,276,859**	**$392,837,020**

(1) Land use categories are described in additional detail in **Table B-5**.

(2) To estimate upper bound impacts, EPS assumes that all agricultural lands except for those with the 'AC' land use designation will be converted for development between 2015 and 2030.

(3) Offsetting compensation is based on a 3:1 ratio.

(4) Land values are described in additional detail in **Tables 3** and **4**.

(5) Offsetting compensation costs are discounted at 7 percent and presented in present value terms.

Table B-5
Land Use Descriptions

Land Use Code	Description
'A'	Agriculture: Lands with prime soils, prime agricultural land, grazing land, existing agricultural land, land under Williamson Act
AC' (1)	Agricultural Commercial: Minimum parcel size- 40-320 or more acres
'A-II'	Agriculture II: Minimum parcel size- 40 or more acres
'A-II-100'	Agriculture II: Minimum parcel size- 100 acres
'A-II-320'	Agriculture II: Minimum parcel size- 320 acres
CITY' (2)	Santa Barbara, Carpinteria, Lompoc, Buellton, Solvang, Santa Maria, Guadalupe, or Goleta
'EDUCATIONAL FACILITY'	Educational Facility (all schools elementary through college level)
'GENERAL COMMERCIAL'	General Commercial (all types of commercial activities)
'GENERAL COMMERCIAL/OFFICE AND PROFESSIONAL/PLANNED DEVELOPMENT-3.3'	General Commercial/Office and Professional/Residential: Maximum dwelling units- 3.3 / acre
'HIGHWAY COMMERCIAL'	Highway Commercial (hotels, restaurants, garages, service stations)
'NEIGHBORHOOD COMMERCIAL'	Neighborhood Commercial (located within neighborhood, foodstores, drugstores, gas stations)
'OPEN AND GRAZING'	Open and Grazing (areas which are at present time unsuited for intensive agriculture due to poor soil, steep slopes, etc.)
'RECREATION/OPEN SPACE'	Recreation/Open Space (public parks, flood control easments providing access to stream channels, and golf courses)
'RES-0.33'	Single Family: Maximum Dwelling Units- 1 unit / 3 acres
'RES-1.0'	Single Family: Maximum Dwelling Units- 1 unit / acre
'RES-1.8'	Single Family: Maximum Dwelling Units- 1.8 units / acre
'RES-3.3'	Single Family: Minimum Parcel size- 10000 sq.feet (Maximum dwelling units- 3.3/acre)
'RES-4.6'	Single Family: Minimum Parcel size- 7000 sq. feet or more (Maximum dwelling units- 4.6/acre)
'RR-20'	Residential Ranchette: Minimum parcel size- 20 acres

(1) According to the Santa Barbara County Comprehensive Plan, Agricultural Element (1991), 'AC' zoned parcels are subject to or eligible for a Williamson Act Contract. EPS assumes Williamson Act constraints affect parcels with this land use designation.
(2) Land with the designation "City" is found within CH Unit 1 only. This land has been identified using parcel maps as land owned by the Santa Maria Airport.

Economic &
Planning Systems
Real Estate Economics
Regional Economics
Public Finance
Land Use Policy

APPENDIX C:

CTS DEA RESULTS, THREE PERCENT DISCOUNT RATE

CTS DEA RESULTS, THREE PERCENT DISCOUNT RATE

The most current Office of Management Budget (OMB) guidance on discounting practices to be used in regulatory analysis is provided in OMB Circular A-4.[46] OMB circular A-4 states the following:

> *...A real discount rate of 7 percent should be used as a base-case for regulatory analysis. The 7 percent rate is an estimate of the average before-tax rate of return to private capital in the U.S. economy. It is a broad measure that reflects the returns to real estate and small business capital as well as corporate capital. It approximates the opportunity cost of capital, and it is the appropriate discount rate whenever the main effect of a regulation is to displace or alter the use of capital in the private sector.*[47]

OMB Circular A-4 also recommends using other discount rates to show the sensitivity of the estimates to the discount rate assumption. When regulation affects private consumption, a lower discount rate is appropriate. OMB Circular A-4 states that "for regulatory analysis, you should provide estimates of net benefits using both 3 percent and 7 percent."[48] A three percent discount rate is justified in the following manner:

> *If we take the rate that the average saver uses to discount future consumption as our measure of the social rate of time preference, then the real rate of return on long-term government debt may provide a fair approximation. Over the last thirty years, this rate has averaged around 3 percent in real terms on a pre-tax basis. For example, the yield on 10-year Treasury notes has averaged 8.1 percent since 1973 while the average annual rate of change in the CPI over this period has been 5.0 percent, implying a real 10-year rate of 3.1.*[49]

Tables C-1 and **C-2** present results of the CTS DEA using a discount rate of three percent.

[46] Executive Order 12866, "Regulatory Planning and Review," September 30, 1993; U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf.
[47] Ibid.
[48] Ibid.
[49] Ibid.

Table C-1
Summary of Upper-Bound Past and Future Impacts Within Proposed Critical Habitat (1)

CH Unit	Viticulture	Road Construction	Utilities & Infrastructure	Airport District	Real Estate Development		Total
					Project Costs	CEQA	
Future Impacts (2005 - 2030)							
1	$ 23,159	$ 165,776	$ 440,108	$ 803,618	$ 296,700,741	$ 4,645,831	$ 302,768,681
2	$ 23,159	$ -	$ 677,226	$ -	$ 466,492,520	$ 7,148,868	$ 474,341,772
3	$ 2,725,694	$ -	$ -	$ -	$ -	$ -	$ 2,725,694
4	$ 4,551,892	$ -	$ 23,783	$ -	$ 4,899,716	$ 251,051	$ 9,726,417
5	$ 23,159	$ -	$ -	$ -	$ -	$ -	$ 23,159
6	$ 23,159	$ 51,901	$ -	$ -	$ -	$ -	$ 75,060
Total	$ 7,370,220	$ 217,677	$ 1,141,117	$ 803,618	$ 768,092,976	$ 12,045,750	$ 789,671,358
Annualized Future Impacts (2)	$412,278	$12,176	$63,832	$44,953	$42,965,808	$673,819	$ 44,172,866
Past Impacts (2000 - 2004)							
1	$ -	$ 24,454	$ 123,742	$ 400,000	$ -	$ -	$ 548,195
2	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	$ 269,669	$ -	$ -	$ -	$ -	$ -	$ 269,669
Total	$ 269,669	$ 24,454	$ 123,742	$ 400,000	$ -	$ -	$ 817,864
Grand Total	$ 7,639,889	$ 242,131	$ 1,264,858	$ 1,203,618	$ 768,092,976	$ 12,045,750	$ 790,489,223

(1) Future and past impacts are discounted at 7 percent and presented in present value terms using 2004 dollars.
(2) Annualized impacts are calculated using a discount rate of 7 percent and a 26 year time horizon.

Table C-2
Summary of Lower-Bound Past and Future Impacts Within Proposed Critical Habitat (1)

CH Unit	Viticulture	Road Construction	Utilities & Infrastructure	Airport District	Real Estate Development		Total
					Project Costs	CEQA	
Future Impacts (2005 - 2030)							
1	$ 23,159	$ 165,776	$ 1,137,049	$ 803,618	$ 159,579,627	$ 2,544,619	$ 164,253,847
2	$ 23,159	$ -	$ -	$ -	$ -	$ -	$ 23,159
3	$ 2,725,694	$ -	$ -	$ -	$ -	$ -	$ 2,725,694
4	$ 4,551,892	$ -	$ 4,067	$ -	$ 369,983	$ 9,102	$ 4,935,045
5	$ 23,159	$ -	$ -	$ -	$ -	$ -	$ 23,159
6	$ 23,159	$ 51,901	$ -	$ -	$ -	$ -	$ 75,060
Total	$ 7,370,220	$ 217,677	$ 1,141,117	$ 803,618	$ 159,949,610	$ 2,553,721	$ 172,035,963
Annualized Future Impacts (2)	$ 412,278	$ 12,176	$ 63,832	$ 44,953	$ 8,947,308	$ 142,851	$ 9,622,806
Past Impacts (2000 - 2004)							
1	$ -	$ 24,454	$ 123,742	$ 400,000	$ -	$ -	$ 548,195
2	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	$ 269,669	$ -	$ -	$ -	$ -	$ -	$ 269,669
Total	$ 269,669	$ 24,454	$ 123,742	$ 400,000	$ -	$ -	$ 817,864
Grand Total	$ 7,639,889	$ 242,131	$ 1,264,858	$ 1,203,618	$ 159,949,610	$ 2,553,721	$ 172,853,827

(1) Future and past impacts are discounted at 7 percent and presented in present value terms using 2004 dollars.
(2) Annualized impacts are calculated using a discount rate of 7 percent and a 26 year time horizon.